REPORT RESUMES

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THE NEBRASKA STUDY OF THE SYNTAX OF CHILDREN'S WRITING, 1965-66, VOLUME II.

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THE SECOND PHASE OF THE SYNTAX STUDY OF CHILDREN'S WRITING, CONDUCTED BY THE NEBRASKA CURRICULUM DEVELOPMENT CENTER, CONCENTRATED ON DISCOVERING AND EVALUATING THE DIFFERENCES BETWEEN CONTROL GROUPS WHICH DID NOT USE THE NEBRASKA ENGLISH CURRICULUM AND EXPERIMENTAL GROUPS WHICH DID. ANSWERS WERE SOUGHT TO THE FOLLOWING QUESTIONS--(1) HOW DOES THE SYNTAX OF THE CHILDREN'S WRITING CHANGE AS THEY MATURE. (2) AT WHAT AGE DO THE CHILDREN BEGIN USING VARIOUS STRUCTURES. (3) HOW DOES THEIR SYNTAX DIFFER FROM THAT OF ADULTS. (4) WHAT RELATIONSHIP EXISTS BETWEEN A CHILD'S BACKGROUND AND HIS USE OF SYNTACTIC PATTERNS. (5) IS THERE ANY DIFFERENCE BETWEEN THE SYNTAX OF CHILDREN INVOLVED IN THE NEBRASKA ENGLISH CURRICULUM AND OF THOSE IN TRADITIONAL LANGUAGE ARTS PROGRAMS. THE POPULATION SAMPLE WAS COMPOSED OF 500 CONTROL AND 250 EXPERIMENTAL SUBJECTS IN GRADES TWO THROUGH SIX IN TEN NEBRASKA SCHOOLS. THE FIRST FIVE SENTENCES IN EACH CHILD'S COMPOSITION AND A 500-SENTENCE SAMPLE FROM THE WRITINGS OF 25 MAJOR MODERN AMERICAN WRITERS OF PROSE FICTION PROVIDED THE DATA FOR ANALYSIS. SOME OF THE FINDINGS WERE--(1) THE SUBJECT-VERB-OBJECT PATTERN DECREASED IN THE CHILDREN'S WRITTEN LANGUAGE AS THEY MATURED, (2) THE USE OF THE NEBRASKA ENGLISH CURRICULUM ENABLED THE ELEMENTARY SCHOOL STUDENTS TO APPROACH CRITERIA INFERRED FROM THE WRITINGS OF PROFESSIONALS, AND (3) THE SYNTACTIC PATTERN DIFFERENCE BETWEEN SECOND- AND SIXTH-GRADERS WAS GREATER THAN THAT BETWEEN SIXTH-GRADERS AND PROFESSIONALS. (RD)

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VOLUME II

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July 1967

The University of Nebraska
Nebraska Curriculum Development Center

This study was made possible by a grant from the Louis W. and Maud Hill Family Foundation of St. Paul, Minnesota.

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VOLUME II

THE NEBRASKA STUDY
OF THE SYNTAX OF CHILDREN'S WRITING, 1965-66

Director: Sam Sebesta
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ACKNOWLEDGMENT

Credit for this study belongs to many persons: Sam Sebesta, who assumed major responsibility for the portion of the study reported in Volume II; the project team; personnel of the Nebraska Curriculum Development Center; linguists; statisticians; and especially, to the many teachers and administrators of the Lincoln and Omaha Public Schools who made this research possible.

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CHAPTER I

THE PROBLEM OF THE STUDY

The Nebraska Syntax study came into existence because there is a need to know much more than we do about how children learn to write. Although there have been several good recent studies of children's oral language, especially Ruth Strickland's The Language of Elementary School Children, and Walter Loban's The Language of Elementary School Children, there have been few significant studies of the written language of children. This study was conceived as a partial attempt to fill the gap.

I. PURPOSE AND ORGANIZATION

It was hoped that the study could provide at least partial answers to such basic questions as these: 1) How does the syntax of their writing change as children mature? 2) At what age do children begin to use various structures in their writing? 3) How does the syntax of children differ from that of adults? 4) What is the relationship between the child's use of the various syntactic patterns and his background? and 5) Is there any difference between the syntax of children in classrooms using the Nebraska English Curriculum and children in traditional language arts programs?

A three-year study of the syntax of children's compositions to find answers to these questions was originated under the aegis of the Nebraska Curriculum Development Center and made possible by a grant from the Hill Family Foundation of Minneapolis.

In each of the years of the study, a different approach was taken in hopes of gaining different kinds of information about children's written syntax. During the first year of the study, 1964-65, randomly selected sentences from 1000 compositions of control children in grades 2-6, 200 at each grade level, were analyzed with major emphasis placed on getting an over-all picture of what children produce at each grade level. During the second year of the study, 1965-66, major emphasis was placed on discovering and evaluating the differences between control and experimental groups. The first five sentences from each composition were analyzed to give an equal representation to each child. In addition, a 500 sentence sample from the writings of major modern American writers of prose fiction was used as a "touchstone" or standard of excellence.

For the third segment of the study, done during the 1966-67 school year, three groups of thirty students at grade 3 and three similar groups at grade 6 were selected for further study of the differences between control and experimental groups. One group of 30 at each grade level was composed of children who were in traditional English programs; a second group was in programs where some use was made of Nebraska "Project English" materials; the third group at each grade level had a more intensive exposure to Nebraska English Curriculum Center materials, a heavier emphasis being placed on language and composition activities. Every sentence written in the two compositions was analyzed; (smaller samples were taken in the two earlier parts). For each child, two compositions were collected, one in the fall and another in the spring. These compositions provided information about the amount of growth in syntax which each group attained during a specific period as well as the level of attainment they had reached.

The findings of each year's research are reported in a separate segment of the study. This segment of the study reports on the findings of the second year's work. The findings of the other parts are presented in separate reports.

The staff of the Nebraska Syntax Study during the second part (1965-66) was as follows:

Sam Sebesta, Director

Nell Thompson, Assistant Director
Donald Nemanich, Linguistic Analyst

II. THE DEVELOPMENT OF THE CHILD'S SYNTACTIC REPERTORY AND CONSCIOUS TRAINING

Some current theory, and that only partially agreed upon by linguists and educator-linguists, has it that a student's awareness of the possibilities implicit in English syntax may expand the spectrum of conscious possible options from which a writer selects those which are most appropriate to his purpose; the theory has been most succinctly stated by Enola M. Borgh: "The task of the composition teacher in the area of sentence structure is to bring to the conscious level the patterns of the English sentence which students are already using so that together they can talk intelligibly about them, and then to teach the various ways that these basic patterns can be expanded and combined." (10:3) A parallel case favoring a conscious awareness of how language works as a system, particularly of the system of sentence patterning in so far as it may become an aid to reading, comprises the thesis of Carl A. Lefevre's Linguistics and the Teaching of Reading. The implications of this theory together with data on the failure of elementary school textbooks to develop such understandings, are more fully set forth by Ann Lefcourt (43) and Ruth Strickland (67).

Not all specialists agree with the theory that knowing alternatives necessarily increases one's ability to choose wisely. Walter Loban (45:88) believes that teachers "would need to be aware of the structural problems" but that the child's knowledge of structure might best be limited to "models, meaning, and reasoning rather than to the application of rules." And Kellogg W. Hunt concludes his intensive study of written grammatical structures very cautiously: "This study provides no evidence at all on the question of whether the abstract description of sentence structures should have any part in the English curriculum." (35:155). The whole debate is most clearly put in focus by Alvina T. Burrows in her review of the Strickland study cited above:

> In view of children's demonstrated success in learning to use the basic structures of language, including appropriate variations in pitch, stress, juncture, in quite unself-conscious ways, one cannot help but question what efficiency would be added by analytical techniques? Insights into child development support the view that elementary school years are most valuable for the extending, refining, disciplining of oral language and for transmission of oral efficiency to the use of written symbols for both reading and writing. *Values of conscious linguistic analysis will indeed have to be proved; they cannot be assumed.* [Italics added.] (12:534)

The present study directs attention to two areas of concern:

1. Given the information now available regarding syntactic patterns and children's knowledge and use of patterns, what can be learned about the child's growing ability to manipulate English syntax? Here our study builds on the Strickland, the Loban, and Hunt studies, in that its attention is directed first to sentence patterns. Specifically, the question to be met is, "What basic sentence patterns and other structures appear in the writing of elementary children?" Is there a major difference in the proportion of the patterns used at the various grade levels? How does the use of such structures compare with the frequency of use of various syntactic structures by selected professional writers?

2. The second area of concern which permeates the entire study has to do with a pedagogical question which this study cannot answer completely, but for which some useful information may be provided: "Does training designed to increase the elementary child's awareness of syntactic options result in a) a greater variety of structures leading to b) superior written composition (perhaps approaching more closely the syntax of professional writers)?" In this case the training is of a certain kind--training in structural grammar connected with some study of syntactically sophisticated literature. The first question relates to

basic knowledge, and its answer should constitute a useful addition to what we know about the child's language development. The second question relates to the more pragmatic, the more pressing matter, of what to do in the "here and now" composition class.

III. PROCEDURES

Selection of subjects. Ten schools, five in Lincoln and five in Omaha, participated in the second phase of the three-year Nebraska Study (See Appendix A). In this part of the study, the population sample included five hundred control subjects and 250 experimental subjects from three schools. The control subjects were chosen through the process of random selection in which a table of random numbers was used. The experimental subjects were drawn from three schools which were using the Nebraska English Curriculum materials. Each experimental subject chosen had for the previous two-year period been in a classroom in which the Nebraska materials were used as a part of the curriculum.

All testing situations were conducted during a three month period: January, February, and March of the 1963-1964, 1964-1965, and 1965-1966 school years.

The pattern of organization of the second part of the Nebraska Study is shown in the figure below:

	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
Control 1963-1964	100	100	100	100	100
Experimental 1964-1965	77	53	43	18	---
Experimental 1965-1966	95	63	44	37	17

Figure 1

Number of Subjects in Each Group Studied In Part II of the Nebraska Study

Selection of Variables. Background data were obtained for both the experimental and control groups on the following fifteen descriptive variables:

- Educational level of mother
- Occupational status of father
- Educational level of father
- Mother's employment
- Chronological age
- Mental age
- Verbal IQ
- Non-verbal IQ
- Total IQ
- Vocabulary reading
- Comprehension reading
- Total reading
- Mechanics
- Spelling
- Total language

The father's occupational status was determined by the seven-step Minnesota Scale for Parental Occupation, and the educational level of each parent was described by a seven-point scale. (See Chapter II, Tables I and II.) The California Test of Mental Maturity yielded a verbal, non-verbal, and total IQ score, as well as the child's mental age. Two California Achievement tests were also administered and provided the three reading scores and also the spelling, mechanics, and total language scores. The distribution of scores on each test can be seen in Chapter II, Findings on Background Information Analysis.

The Writing Situation. The compositions which were analyzed for the study were all written under similar conditions. In groups of approximately 25, the 500 control (1963-64) and 191 experimental students (1964-65) were shown the film "Adventures of a Baby Fox." In 1965-66 experimental subjects only were included, 250 children, and the film used was "Hunter in the Forest."

A film was used as a means of keeping constant the pre-writing motivation for all groups of subjects. After the film was shown, the children were asked to write stories. They were told they could write any type of original story they chose to write and that they would be given forty minutes of writing time. They were given help with the spelling of any words they needed; this procedure was followed so that the child's flow of ideas would not be restricted because of his inability to spell certain words.

Procedures in Compiling Data. After the compositions were collected, they were typed lengthwise on $8\frac{1}{2}$" x 11" sheets of paper with five spaces between lines. These wide spaces between lines permitted detailed analysis of the constituents of each sentence on the sheet containing the composition itself. An instrument for the syntactic analysis was developed specifically as a part of this study of children's writing and is described in the next section.

Only the first five sentences written by each child were analyzed. This guaranteed that each child would be equally represented in the total corpus of each group if the child wrote at least five sentences, as most did.

After the syntactic analysis was completed, both syntactic data and background information were recorded on Fortran sheets and then transferred to punch cards for computer analysis. The results obtained from the computer are presented in the findings of the study.

IV. PROCEDURES IN SYNTACTIC ANALYSIS

The Instrument of Snytactic Analysis. During the 1964-1965 school year the instrument of analysis for the Nebraska study was developed by Eldonna Evertts, Dudley Bailey, Albert Marckwardt, Vance Hansen, Don Nemanich, and Paul Olson. The present study is concerned with only the written language of children, but at the time the study was begun it was believed desirable to have an instrument similar in grammatical presupposition and in basic system of notation to that used in the Strickland study of the oral language of children. However, it was felt that, on the basis of the experience of the Strickland study, a somewhat more refined and complex instrument might do a better job of looking for us. It was felt that the system had to be simple enough to permit rapid, immediate inspection analysis of a large number of children's sentences. Hence, in part, the reticence to use a transformational schematum. Finally, the verb system was set aside as requiring a later research project. Out of this pragmatic calculus, the present instrument emerged.

Although the system is a multi-level one in contrast with Strickland's two-level schematum, the system of analysis parallels Strickland's on the first level. For example, at level one, the noun and verb slots are identified by symbols quite similar to those used in the Strickland study, and other sentence level slots are also identified in fashions similar to those of the Strickland study. For instance, in this study--as in Strickland's--the symbols 1 2 4 represent a sentence or clause which has a subject-verb-object pattern. (See Appendix D for a comparison of level 1 symbols for identifying syntactic items in the Strickland, Loban, and Nebraska studies.) However, differences from Strickland's usage do appear in our level one analysis--especially in the treatment of adverbial slots; in the Strickland study, adverbials are identified by notional criteria; there are, for example, adverbials of place, time, manner, etc. In the present study, however, adverbials are identified according to position rather than notional type, and, in addition, a distinction is made between those adverbials which are fixed and those movable--a classification which contrasts with the Strickland study in which all adverbials are called movable regardless of their degree of movability. (For examples, see Appendix E.)

The system for analyzing levels after the first differs more radically from Strickland's. In her study there were two levels of analysis; in the present study as many levels are used as are needed to describe the structures used so that the present system of analysis identifies more precisely the constituents of slots, whereas in the Strickland study the constituents of any slots are simply identified as nuclei and satellites, or heads and modifiers. This is not to denigrate the Strickland notation, but to suggest that--on the basis of the experience of her study and others--we opted for a somewhat more complex instrument, hoping that it would reveal some of the subtleties for which we were looking. In our notational system, the constituents are described as specifically as possible by appropriate grammatical terminology: thus, e.g., the subject of a sentence is not merely identified as a nucleus preceded by satellites, but rather is described as a noun preceded by a determiner, adjective, possessive noun, or attributive noun. When phrases or clauses are inserted within one another, two levels of analysis are inadequate to describe the resultant complexity. Consider, for example, the following sentence written by a third grade child: "It was the head of Aroma, the main character in my story." The sentence consists of a subject, linking verb, and noun complement, and the complement consists of the noun "head" preceded by a determiner, and followed by a prepositional phrase which includes additional modifiers. The constituents of slots are revealed by a second level of analysis. However, the second level of analysis does not reveal the elements within the constituents. The following representation of our system of analysis indicates how complex structures can be described by a multi-level system of analysis.

```
It     was      the head of Aroma the main character in my story.
                                  complement                       level 1
Subj. Linking
      verb
               det. Head
                    noun_________prepositional phrase__________    level 2

                          prep. Head
                                noun__________appositive_______    level 3

                                              Head      Prep.
                                    det. adj. noun     _phrase_    level 4

                                                   prep. poss. Head
                                                      pronoun noun level 5
```

The system of analysis which we used in this instrument is generally eclectic, and borrows from the work of various modern linguists and their several approaches to syntax--structural, stratificational, tagmemic, and transformational-generative; it does not claim to advance syntactic theory toward a more refined description of linguistic system but rather claims a certain workability. However, it is essentially an immediate constituent system of analysis, perhaps most like the system elaborated by Robert Longacre and other tagmemicists. (36: passim) Use has been made of transformational-generative grammar where transformational-generative grammar seemed most helpful to our purposes--where we wished to show relationships between syntactic structures which are essentially identical in "meaning" but different in syntax: active-passive structures, statement-question structures, etc.

The strongest criticism of non-transformational grammars by Postal (58: passim) and others has been that these grammars account only for surface structure and cannot explain adequately structures which are similar in form but different in their underlying grammatical structure. As Chomsky (19: 66-7) and others have noted, in terms of meaning in the sentences "John is eager to please" and John is easy to please," "John" is the subject of "please" in the first sentence, and the object of "please" in the second.

Although such knowledge is both interesting and significant, it has not seemed to the analyst who used the instrument on children's writing especially pertinent to a description of the syntactic patterns used by children; it should be observed that the analyst who interpreted the sentence, has been trained in structural, transformational, and tagmemic grammars. The present instrument does not attempt to be a grammar of English, but rather a description of the syntactic elements which appear in written composition. The actual syntactic patterns of sentences, the actual constituents of noun phrases, adverbial elements, etc.

are revealed in the tabulation of the results of the study. The purpose of the instrument is not to describe all of the structures available to English and their interrelationships; it is to provide a usable set of symbols representing the major slots and constituents found within the syntactic patterns used by children. As such it works.[1]

Professional Writers' Sample. The description of the writing of elementary school children, obtained from using the "Instrument For Syntactic Analysis," provided a considerable amount of information about children's syntax and how it changes. Yet, to be of most value, such information about children's syntax should indicate not only the progress that children are making in their written syntax, but also the extent to which they approach a desirable standard of written syntax. But, where is such a touchstone to be found?

Obviously, a desirable standard of comparison with which to evaluate the syntax of children would be from twentieth-century America. But who among our writers should be the standard? It would be virtually impossible to get agreement from any large group of readers of contemporary fiction about selecting one writer whose syntax should be the ideal toward which young writers should progress. Thus, it was decided that the sample whould represent several writers. The 500 sentence sample selected to be the standard consisted of twenty sentences randomly selected from major works of prose fiction by twenty-five modern American writers. (See Appendix B for list.) The linguistic analyst arbitrarily selected the twenty-five writers after discussions with several professors in the Department of English at the University of Nebraska.

A wide variety of styles is represented. Each writer on the list is well-known for his prose fiction and each is successful. Some have enjoyed considerable popularity and little critical acclaim; whereas others are generally considered to be among the best of our modern writers.

---

[1] The complete Instrument of Syntactic Analysis appears as an appendix to Part I of the study.

In each of the twenty-five selections, the twenty sentences chosen for analysis included the first six in each work and two passages of seven each from two randomly selected pages.

CHAPTER II

FINDINGS ON BACKGROUND INFORMATION ANALYSIS

A variety of different measures of intelligence, achievement, and socio-economic background were used to describe all groups and to compare them. Specifically, the following variables were used:

Educational level of mother
Educational level of father
Mother's employment (yes-no)
Occupational status of father
Chronological age
Mental age
Verbal intelligence
Non-verbal intelligence
Total intelligence
Reading vocabulary
Reading comprehension
Total reading
Mechanics
Spelling
Total language

I. EDUCATIONAL BACKGROUND OF PARENTS

A seven-step scale of parents' educational attainment was used to describe the distribution of parents according to the amount of formal education they had had. (See Table 1.) For each group, fathers and mothers were considered separately. For both fathers and mothers, the mode was "completed high school." In only one of the groups did the mode fall elsewhere: in the 3E2 group, the mode for mothers was "attended college." For all groups combined, about half of all fathers and three-fourths of all mothers are in either the "completed high school" or "attended college" categories.

Table 1 DISTRIBUTION OF PUPILS ACCORDING TO EDUCATIONAL BACKGROUND OF THE PARENTS

Educational background of parents	Grade																	
	2C		2E1		2E2		3C		3E1		3E2		4C		4E1		4E2	
	F*	M*	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M
Attained 18 or more years of education	4	0	4	0	5	0	4	0	5	0	3	0	9	0	4	0	4	0
Attended graduate school	7	1	14	5	13	7	5	0	9	4	13	4	8	2	7	0	8	4
Completed college	11	13	16	4	15	13	6	10	7	5	14	4	19	16	2	6	6	3
Attended college	26	25	13	31	22	30	30	27	13	17	10	28	25	31	8	12	11	14
Completed high school	38	51	22	32	29	37	35	48	13	23	18	24	28	46	12	21	11	19
Attended high school	10	10	6	5	7	8	14	13	4	3	4	3	8	3	6	2	2	3
Attended elementary school	4	0	2	0	4	0	6	2	2	1	1	0	3	2	4	2	2	1
Total	100	100	77	77	95	95	100	100	53	53	63	63	100	100	43	43	44	44

* F = fathers; M = mothers

Table 1 DISTRIBUTION OF PUPILS ACCORDING TO EDUCATIONAL BACKGROUND OF THE PARENTS

Educational background of parents	Grade										Total		
	5C		5E1		5E2		6C		6E2				
	F*	M*	F	M	F	M	F	M	F	M	F	M	Grand Total
Attained 18 or more years of education	4	0	0	0	4	0	6	0	0	0	56	0	56
Attended graduate school	8	2	1	0	5	0	6	1	1	0	105	30	135
Completed college	20	10	2	2	2	5	14	11	2	2	136	104	240
Attended college	19	27	3	5	8	9	23	23	3	5	214	284	498
Completed high school	36	49	6	8	11	19	30	44	5	8	294	429	723
Attended high school	6	9	3	2	4	2	14	17	3	2	91	82	173
Attended elementary school	7	3	3	1	3	2	7	4	3	0	51	18	69
Total	100	100	18	18	37	37	100	100	17	17	947	947	1894

* F = fathers; M = mothers

Table 2 PERCENTAGE DISTRIBUTION OF PUPILS ACCORDING TO OCCUPATIONAL STATUS OF THE PARENTS

Occupational classification	Percentage					
	2C N=100	2E1 N=77	2E2 N=95	3C N=100	3E1 N=53	3E2 N=63
I. Professional	9.0	13.0	8.4	5.0	20.8	14.3
II. Semi-professional and managerial	21.0	24.7	22.1	13.0	17.0	23.8
III. Clerical, skilled trades, retail business	38.0	19.4	20.0	36.0	20.8	19.0
IV. Farming*						
V. Semi-skilled occupations, minor clerical positions, and minor business	27.0	39.0	40.0	39.0	30.2	39.7
VI. Slightly skilled trades	3.0	3.9	7.4	4.0	9.4	3.2
VII. Day labor	2.0	0.0	2.1	3.0	1.8	0.0

* Omitted in this study.
N = Number of students.

Table 2 PERCENTAGE DISTRIBUTION OF PUPILS ACCORDING TO OCCUPATIONAL STATUS OF THE PARENTS

Occupational classification	Percentage							
	4C N=100	4E1 N=43	4E2 N=44	5C N=100	5E1 N=18	5E2 N=37	6C N=100	6E2 N=17
I. Professional	12.0	16.3	20.5	13.0	0.0	16.2	9.0	0.0
II. Semi-professional and managerial	24.0	11.6	18.2	19.0	22.2	10.8	20.0	23.5
III. Clerical, skilled trades, retail business	42.0	9.3	22.7	38.0	33.3	10.8	34.0	35.3
IV. Farming*								
V. Semi-skilled occupations, minor clerical positions, and minor business	22.0	44.2	29.5	22.0	38.9	43.2	29.0	35.3
VI. Slightly skilled trades	0.0	16.3	6.8	4.0	0.0	16.2	7.0	0.0
VII. Day labor	0.0	2.3	2.3	4.0	5.6	2.7	1.0	5.9

* Omitted in this study.
N = Number of students.

II. OCCUPATIONAL STATUS OF PARENTS

The Minnesota Scale for Parental Occupations was used to describe the distribution of the subjects' parents according to occupational status. (See Table 2.) Because all samples were taken from municipal schools, there were no farmers among the parents. In general, the number of fathers that were slightly skilled or day laborers was small, although in the 4E1-5E2 group, these were more than 18% of all fathers, considerably larger than the percentage for any other group. The percentage of parents in the "professional" category ranged from 0 to 20.8%, both of which were in Experimental groups. For the second, fourth, fifth, and sixth grade Control groups, the mode for parental occupation is in category III - clerical, skilled trades, and retail business. For all Experimental groups and the third grade Control group the mode is in category V - semi-skilled, minor clerical, and minor business. At every grade the Control group had a higher percentage of parents in the upper three occupational groups than the Experimental groups at the same grade had.

III. VERBAL INTELLIGENCE

Table 3 shows the distribution of verbal intelligence scores for each group and for the total sample. The 947 scores actually represent 947 compositions, but only 786 children. Since 161 children in the Experimental groups were represented by two compositions collected in different years, their IQ scores were included twice. Thus each IQ score represents a composition rather than a child. All intelligence test scores were obtained from the California Test of Mental Maturity. The number of children above 120 Verbal IQ is approximately the same as that below 120. In fact, IQ scores seem to fall into four nearly equal groups: 1) those above 130, 2) 120-129, 3) 110-119, and 4) below 110.

Table 3 DISTRIBUTION OF PUPILS ACCORDING TO GRADE, SEX, AND VERBAL INTELLIGENCE

Verbal intelligence quotient	Grade																	
	2C		2E1		2E2		3C		3E1		3E2		4C		4E1		4E2	
	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G
179 - 170																		
169 - 160									1								1	
159 - 150	2	1	1	1					2	1	1	1	2	2			1	
149 - 140	4	6	3	4	5	8	2	2	2	2	3	3	4	2	2	2	2	2
139 - 130	8	7	10	10	6	12	3	6	7	5	8	8	6	9	2	3	6	5
129 - 120	8	9	17	6	6	12	9	9	5	9	13	5	11	15	6	2	5	8
119 - 110	9	9	9	5	12	13	14	14	5	7	8	5	14	11	7	5	4	6
109 - 100	9	9	5	2	8	3	14	16	4		3	2	9	7	4	4	3	
99 - 90	4	8	2	1		5	5	3	1	2	2	1	3	4		3		1
89 - 80	3	1			1	4	2						1		3			
79 - 70	3			1			1											
Total	50	50	47	30	38	57	50	50	27	26	37	25	50	50	24	19	22	22

* B = boys; G = girls

Table 3 DISTRIBUTION OF PUPILS ACCORDING TO GRADE, SEX, AND VERBAL INTELLIGENCE

Verbal intelligence quotient	Grade										Total		
	5C		5E1		5E2		6C		6E2		Boys	Girls	Grand Total
	B*	G*	B	G	B	G	B	G	B	G			
179 - 170								1				1	1
169 - 160							1	1			3	1	4
159 - 150							1	2			10	8	18
149 - 140	1	2			1	2	2	1			31	36	67
139 - 130	8	9	1	1	1	3	7	7	1	1	74	86	160
129 - 120	15	14	1		5	2	11	11	1		113	102	215
119 - 110	11	14	2	4	7	4	13	13	2	4	117	114	231
109 - 100	6	5	4		3	4	6	9	4		82	61	143
99 - 90	6	4	3	1		2	6	2	3		35	37	72
89 - 80	1	1		1	3		1	3		1	15	11	26
79 - 70	2	1					2				8	2	10
Total	50	50	11	7	20	17	50	50	11	6	488	459	947

* B = boys; G = girls

VERBAL IQ

Table 4 MEANS AND STANDARD DEVIATIONS FOR EACH GROUP

Grade	Group					
	Control		First Year Experimental		Second Year Experimental	
	M	SD	M	SD	M	SD
2	116.24	18.72	124.31	14.01	119.97	15.09
3	113.70	13.19	125.09	15.50	124.61	13.03
4	120.26	15.28	115.72	15.60	126.00	13.99
5	116.51	15.32	108.78	11.59	115.30	15.37
6	118.47	18.07			109.76	12.43

Table 4 gives means and standard deviations for each group in verbal intelligence. In grades two and three, the Experimental groups have higher mean verbal intelligence scores than the Control groups at these grades. At grade four the Control group falls between the two Experimental groups, but at grades five and six the Control groups have higher means on the test of verbal intelligence.

IV. NON-VERBAL INTELLIGENCE

For the Control groups, the mean non-verbal intelligence ranges from 102.73 to 113.04; however, only the third grade group falls below 110. (See Table 5.) The remaining four groups are quite close. For the Experimental groups the range of means in non-verbal intelligence is from 102.44 to 116.41, which is a slightly wider range than for the Control groups. At grade three, the Control group is considerably below the Experimental group in non-verbal IQ, and at grade six the Control group is definitely superior to the Experimental. At grades two, four, and five, the groups are much closer, with the Control groups at grades two and four just below the Experimental, and at grade five between the two Experimental groups.

V. TOTAL INTELLIGENCE

The distribution of total intelligence scores for all children represented in the study is given in Table 6. Table 7 gives the means and standard deviations of total intelligence for each group as obtained from the California Test of Mental Maturity.

The mean total intelligence scores for the Control groups vary from 108.39 to 117.08 (grades three and four) and for the Experimental groups from 105.67 (fifth grade, first year) to 121.39 (fourth grade, second year). For grades two and

Table 5

NON-VERBAL IQ

MEANS AND STANDARD DEVIATIONS FOR EACH GROUP

Grade	Group					
	Control		First Year Experimental		Second Year Experimental	
	M	SD	M	SD	M	SD
2	110.01	16.88	115.78	15.46	114.94	15.63
3	102.73	12.91	115.08	15.60	115.66	15.91
4	113.04	17.78	114.14	18.74	116.41	13.31
5	110.64	16.13	102.44	13.71	114.11	19.26
6	111.54	21.88			102.94	13.97

Table 6 DISTRIBUTION OF PUPILS ACCORDING TO GRADE, SEX, AND TOTAL INTELLIGENCE

Total intelligence quotient	Grade																	
	2C		2E1		2E2		3C		3E1		3E2		4C		4E1		4E2	
	B*	G*	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G
179 - 170																		
169 - 160																		
159 - 150				1					1			1				1	1	
149 - 140	1	2	2	1	1	3			1	1	1		3	2		1	1	
139 - 130	5	8	8	4	4	8	1		5	4	8	4	8	5	2	2	4	4
129 - 120	13	5	13	11	11	17	7	6	5	11	10	9	12	13	6	2	4	9
119 - 110	13	12	16	8	9	13	14	17	8	7	12	7	16	16	6	7	7	7
109 - 100	8	16	5	3	12	10	16	18	4	1	4	3	5	9	6	3	4	1
99 - 90	5	5	2	2	1	6	10	8	2	2	2	1	5	5	2	3	1	1
89 - 80	2	2	1				2	1	1		1		1		1			
79 - 70	3														1			
69 - 60																		
Total	50	50	47	30	38	57	50	50	27	26	38	25	50	50	24	19	22	22

* B = boys; G = girls

Table 6 DISTRIBUTION OF PUPILS ACCORDING TO GRADE, SEX, AND TOTAL INTELLIGENCE

Total intelligence quotient	Grade										Total		
	5C		5E1		5E2		6C		6E2		Boys	Girls	Grand Total
	B*	G*	B	B	B	G	B	G	B	G			
179 - 170								1				1	1
169 - 160							1				1		1
159 - 150						1		1			2	5	7
149 - 140	1	1				1	5	3			16	14	30
139 - 130	5	3			1	2	6	4			57	48	105
129 - 120	15	11	2		4	2	7	5	2		111	101	212
119 - 110	13	17	3	2	6	6	15	18	3	2	141	139	280
109 - 100	9	12	3	3	5	3	4	10	3	3	88	95	183
99 - 90	5	6	3	1	2	2	6	7	3		49	49	98
89 - 80					1		4	1			14	4	18
79 - 70	1			1	1		1			1	7	2	9
69 - 60	1						1				2	0	2
Total	50	50	11	7	20	17	50	50	11	6	488	458	946

* B = boys; G = girls

Table 7

TOTAL IQ

MEANS AND STANDARD DEVIATIONS FOR EACH GROUP

Grade	Group					
	Control		First Year Experimental		Second Year Experimental	
	M	SD	M	SD	M	SD
2	113.37	15.22	120.26	12.51	117.79	12.36
3	108.39	10.62	120.30	13.41	120.25	12.14
4	117.08	13.13	115.12	15.42	121.39	11.86
5	113.88	13.10	105.67	12.77	114.95	15.45
6	115.10	18.45			106.41	11.49

three, the Experimental groups are somewhat above the Control groups in total intelligence, as measured by the California Test of Mental Maturity. At grades four and five, the Control groups fall between the two Experimental groups, and at grade six the Control group is considerably above the Experimental in total intelligence.

VI. READING

Tables 8, 9, and 10 show the means and standard deviations for each group on the three reading scores: reading vocabulary (Table 8), reading comprehension (Table 9), and total reading (Table 10). Scores were obtained from the California Reading Test. In general, means for each group are similar for the three variables; in other words, there is seldom a considerable difference between a group's mean on vocabulary and that on comprehension. At grades two and four the Experimental groups perform slightly better than the Control; at grade three, their means are virtually the same. At grade five the second year Experimental group closely approximates the Control group; however, the first year Experimental group is from seven to nine months below the other groups. When this same group of students (5E1) moved into sixth grade (6E2), they were again six to eight months below the Control group in reading vocabulary and comprehension.

VII. LANGUAGE SCORES

The language scores are obtained from the California Language Test. Table 11 gives the means and standard deviations for each group on a Mechanics of English Test. The Experimental groups have scores superior to the Control groups at grades two, three, and four. At grade five the Control group's mean is between the means for the two Experimental groups; the Control group is considerably above

Table 8

VOCABULARY

MEANS AND STANDARD DEVIATIONS FOR EACH GROUP

Grade	Group					
	Control		First Year Experimental		Second Year Experimental	
	M	SD	M	SD	M	SD
2	2.61	.6	2.83	.52	2.98	.57
3	4.21	.72	4.32	.58	4.26	.57
4	5.84	1.2	5.68	1.06	6.31	1.13
5	6.73	1.42	6.04	.97	6.5	.94
6	7.19	1.16			6.53	.89

Table 9

COMPREHENSION

MEANS AND STANDARD DEVIATIONS FOR EACH GROUP

Grade	Group					
	Control		First Year Experimental		Second Year Experimental	
	M	SD	M	SD	M	SD
2	2.77	.70	2.85	.85	3.16	.81
3	4.03	.67	4.08	.48	4.02	.52
4	5.71	1.28	6.07	1.19	6.4	1.18
5	6.55	1.49	5.64	1.16	6.86	1.18
6	7.21	1.5			6.37	1.18

Table 10

TOTAL READING

MEANS AND STANDARD DEVIATIONS FOR EACH GROUP

Grade	Group					
	Control		First Year Experimental		Second Year Experimental	
	M	SD	M	SD	M	SD
2	2.71	.64	2.87	.56	3.08	.61
3.	4.11	.66	4.19	.48	4.13	.47
4	5.81	1.18	5.94	1.08	6.42	1.13
5	6.69	1.4	5.96	.87	6.77	.96
6	7.25	1.28			6.5	1.03

Table 11

MECHANICS

MEANS AND STANDARD DEVIATIONS FOR EACH GROUP

Grade	Group					
	Control		First Year Experimental		Second Year Experimental	
	M	SD	M	SD	M	SD
2	2.45	.53	2.76	.63	2.81	.53
3	3.85	.4	4.13	.59	4.03	.56
4	5.7	1.01	5.89	1.24	6.02	1.11
5	6.57	1.36	5.55	1.29	6.75	.88
6	7.18	1.15			6.44	1.14

Table 12

SPELLING

MEANS AND STANDARD DEVIATIONS FOR EACH GROUP

Grade	Group					
	Control		First Year Experimental		Second Year Experimental	
	M	SD	M	SD	M	SD
2	2.87	.69	3.04	.71	3.44	.64
3	3.7	.56	4.14	.74	3.93	.61
4	5.65	1.16	6.02	1.43	5.61	.53
5	6.76	1.58	5.49	1.38	5.93	.83
6	7.2	1.74			5.67	.44

Table 13

TOTAL LANGUAGE

MEANS AND STANDARD DEVIATIONS FOR EACH GROUP

Grade	Group					
	Control		First Year Experimental		Second Year Experimental	
	M	SD	M	SD	M	SD
2	2.61	.58	2.9	.67	3.06	.61
3	3.86	.42	4.18	.56	4.04	.52
4	5.51	.82	5.64	1.04	5.81	.8
5	6.3	1.18	5.38	[illegible]	6.34	.76
6	6.75	1.01			6.09	.79

the Experimental group at grace six.

Table 12 shows the means and standard deviations for each group for spelling. The Experimental groups surpass the Control groups at grades two and three, and the Control groups surpass the Experimental at grades five and six. At grade four, the Control group's spelling mean approximates that of the second-year Experimental group; however, the first year Experimental group is somewhat ahead of the other two fourth-grade groups. The means and standard deviations of total language scores are given in Table 13. The Experimental groups show superior performance at grades two, three, and four; whereas at grade six the Control group is superior to the Experimental. For grade five, the Control group lies between the two Experimental groups.

VIII. SUMMARY OF BACKGROUND DATA

At grade two the Experimental groups score higher than the Control on every one of the nine measures of intelligence and achievement. The opposite result is found at grade six where the Control group is consistently superior. At grade three, the Experimental groups show performance superior to the Control group on the intelligence and language tests, but the groups are similar in reading facility. The grade four Experimental groups surpass the Control group on six scores and approximate them on the other three. On the other hand, at grade five, the Control group scores higher than the Experimental on verbal intelligence, reading, and spelling tests, and approximates them on the other measures. In general, the Experimental groups surpass the Control at grades two, three, and four, and the Control groups have higher scores at grades five and six.

CHAPTER III

SENTENCE PATTERNS

Any investigation of syntactic patterns must limit itself. Not everything can be revealed by an analysis of sentence patterns.[1] Since one of the key concerns of "new" grammar is the sentence, it has seemed appropriate to a number of research men to look first at the sentences which children write: "The sentence is the primary unit of understanding. Linguists have too trenchantly discredited the old definition--'a sentence is a complete thought'--that the truth therein has fallen into neglect." (53:261) In the present study, the "differences" between sentences which children write at various levels come out of a sample of written compositions. These differences which might not be apparent in speech samples such as those appearing in the Loban and Strickland studies; the writing of primary children may be inhibited by physical incapacities, an effect which almost certainly appears in sentence pattern data of the early grades. Thus it is well to point out, preliminary to investigation of data, that the dictated written composition might yield somewhat different results. (Howell, 31:147)

Language scholars do not always agree on the number of distinctive sentence patterns used by speakers and writers of the English language. Most grammarians and linguists suggest from four to ten or more. In order to obtain the information desired in this study, twelve sentence types, listed below, were identified and found to be adequate and distinguishable. The syntactic analyst's judgments on sentence patterns were accepted in conferences with several linguists and verified by working with the corpus of thousands of children's sentences. Presumably, anyone else using the same categories and the same compositions would be able to make the same judgments and obtain virtually the same results as did the syntactic analyst.

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[1] As discussed by Gleason (25: chapter 13) and as amplified and illustrated by the findings of numerous studies showing little major shift in use of sentence patterns according to grade level and ability. (Strickland, Strang.) Loban, however, appears to have found major syntactic patterns a differential, as subsequently noted.

1. 1 2 subject - verb

   She fell down.

2. 1 2 4 subject - verb - object

   She chased him.

3. 1 2 3 4 subject - verb - indirect object - direct object

   She gave him the money.

4. 1 2 4 6 subject - verb - direct object - objective complement

   She called him a cad.

5. 1 2 4 6A subject - verb - direct object - objective adjective

   She keeps her room neat.

6. 1 2B 5 subject - linking verb - noun or pronoun complement

   She is a pleasant girl.

7. 1 2B 5A subject - linking verb - adjective complement

   She is always cheerful.

8. 1 2P subject - passive verb

   She was pushed.

9. T1 2B 1 expletive "there" - verb - subject

   There were three winners.

In addition to these nine basic sentence patterns, three additional sentence types were identified as being syntactically significant:

10. All questions

    Where is she now?

11. All inversions

    Happy she was.

Out flew a beautiful bird.

12. All compound predicates

She went home and cleaned her room.

(See additional examples of sentence patterns, Appendix F.) It should be noted that any sentence of these three types will be a variation of one or more of the nine basic patterns. Thus, "Who did she push?" is a question, but it is also a 1 2 4 sentence--subject - verb - object!

Each T-unit or sentence was classified in only one of the sentence patterns in the following order: 1) all sentences with compound predicates were put into a single category, sentence type 12, 2) all questions and inverted sentences were grouped with others like them in sentence types 10 and 11, and 3) the remaining sentences, about 90%, are categorized into nine sentence patterns, 1-9, based on major sentence-level slots.

Finally, the manner in which a sentence is identified in this study must be made clear. Since many elementary school children have not mastered the conventions of English punctuation, it was necessary, for this analysis, to establish a uniform system of sentence identification and division. For example, one fourth-grader wrote the following passage as a single sentence: "Once there was a boy named Bob and he liked to do everything he liked to swim he liked to play golf but the the best thing he liked to do was golf." We did as Hunt, Loban and Ashida did in their studies; we considered each independent clause a separate sentence; we joined each subordinate clause to the independent clause to which it was most closely related semantically. Thus, compound sentences were divided into two or more communication units for the purpose of analysis. For example the above fourth-grader's "sentence" was divided into five communication units:

"Once there was a boy named Bob//he liked to do everything//he liked to swim//he liked to play gold//but the best thing he liked to do was golf."

Each of the "communication units" is treated as a sentence in this study; whenever "sentence patterns" are discussed, patterns-of-independent-clauses are actually being considered.

I. INTERPRETATION OF SENTENCE PATTERN FREQUENCIES BY GRADE LEVEL

In Table 14, Major Sentence Patterns, the frequency of use of each pattern for each group is given, together with a denominator consisting of the number of sentences in the corpus for each group. The resulting percentage makes comparison of groups possible despite unequal numbers of sentence options within each corpus.

With the reservations previously delineated in mind, one may draw certain comparisons between the instance of highest frequency patterns in this study and those of Strickland and Loban. The slight rise in the use of the 1 2 pattern, apparent in the other two studies, is here upheld, with the interesting additional information that the Professional Writers conform to the upward trend, using the 1 2 sentence pattern more often than any group of children, except the experimental fifth and sixth grade groups. The 1 2 4 pattern, however, as revealed in the data, shows a contrasting trend: a pronounced decrease by grade level, a decline of more than 10 percent during the interval between grade 2 and grade 6, making the proportionate use of this pattern at the sixth grade level virtually the same as that of the Professional Writers sampled in the study. The face value of these data indicates a "healthy" adjustment of 1 2 4 proportion toward the criterion of maturity found in the Professional Writers. The instance of 1 2 4 patterns in the oral language samples of both Strickland and Loban revealed a slight rise, the latter study designating comparable rise for high and low groups (Tables 4A and 4B, pp. 44-45). Thus, there is the interesting contrast between children's

FREQUENCY AND PERCENT OF COMMUNICATION UNIT PATTERNS

Table 14

	Groups											
	2C		2E1		2E2		3C		3E1		3E2	
	T* = 452		T* = 365		T* = 464		T* = 487		T* = 265		T* = 277	
Patterns	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
1 2	115	25.4	108	29.6	116	25	127	26.1	73	27.5	74	26.7
1 2 4	190	42	120	32.9	153	33	154	31.7	80	30.2	73	26.4
1 2 3 4	3	.7	2	.5	6	1.3	6	1.2	7	2.6	2	.7
1 2 4 6	2	.4	1	.3	2	.4	1	.2	1	.3	0	
1 2 4 6A	0		0		0		0		0		2	.7
1 2B 5	49	10.9	20	5.5	45	9.7	57	11.7	33	12.5	35	12.6
1 2B 5A	41	9.1	26	7.1	44	9.5	49	10.1	11	4.2	24	8.7
1 2P	1	.2	2	.5	1	.2	4	.8	4	1.5	1	.4
T1 I1	28	6.2	57	15.6	56	12.1	55	11.3	33	12.5	40	14.4
W	2	.4	4	1.1	11	2.4	6	1.2	5	1.9	3	1.1
Inversions	1	.2	2	.5	3	.6	3	.6	3	1.1	2	.7
Compounds	20	4.4	23	6.3	27	5.8	25	5.1	15	5.6	21	7.6

*T indicates total communication units

FREQUENCY AND PERCENT OF COMMUNICATION UNIT PATTERNS

Table 14	Groups											
	4C		4E1		4E2		5C		5E1		5E2	
	T* = 468		T* = 225		T* = 223		T* = 463		T* = 103		T* = 183	
Patterns	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
1 2	115	24.6	60	26.7	57	25.6	137	29.6	34	33	59	32.2
1 2 4	146	31.2	57	25.3	75	33.6	144	31.1	28	27.2	38	20.8
1 2 3 4	7	1.5	3	1.3	4	1.8	7	1.5	2	.2	1	.5
1 2 4 6	3	.7	1	.4	0		2	.4	0		1	.5
1 2 4 6A	2	.4	0		0		3	.6	0		0	
1 2B 5	67	14.3	25	11.1	23	10.3	47	10.2	7	6.8	22	12
1 2B 5A	40	8.5	19	8.4	12	5.4	35	7.6	4	3.9	13	7
1 2P	6	1.2	7	3.1	4	1.8	6	1.3	7	6.8	6	3.3
T1 I1	46	9.9	18	8	19	8.5	37	8	5	4.9	15	8.2
W	5	1.1	11	4.9	11	4.9	0		4	3.9	6	3.3
Inversions	5	1.1	8	3.6	5	2.2	10	2.2	5	4.9	7	3.8
Compounds	26	5.5	16	7.1	13	5.8	35	7.6	7	6.8	15	8.2

*T indicates total communication units

FREQUENCY AND PERCENT OF COMMUNICATION UNIT PATTERNS

Table 14

Groups

	6C		6E2		Prof.	
	T* = 449		T* = 84		T* = 500	
Patterns	Freq.	%	Freq.	%	Freq.	%
1 2	121	26.9	30	35.7	149	29.8
1 2 4	120	26.7	20	23.8	131	26.2
1 2 3 4	5	1.1	0		8	1.6
1 2 4 6	2	.4	0		1	.2
1 2 4 6A	3	.7	0		4	.8
1 2B 5	54	12	15	17.9	47	9.4
1 2B 5A	38	8.5	6	7.1	57	11.4
1 2P	10	2.2	0		9	1.8
T1 I1	32	7.1	3	3.6	19	3.8
W	9	2	2	2.4	4	.8
Inversions	9	2	1	1.2	17	3.4
Compounds	46	10.2	7	8.3	54	10.8

*T indicates total communication units

written and spoken language in that the subject - verb - object pattern (1 2 4) decreases in frequency in children's written language and increases in their oral language as they mature.

The instances of use at any grade level or in the Professional Writers' Sample of such little-used patterns as 1 2 3 4, 1 2 4 6, and 1 2 4 6A (See Table 14) are negligible (cf. Loban's comparable finding; Strickland's finding of less than 2 percent 1 2 3 4 patterns is also roughly comparable).

In Table 19 (p. 48) of the Strickland study, Strickland presents evidence showing that the 1 2B 5 pattern (the N Vbe N and N Vbe Adj) is a mark of linguistic "maturity" since frequencies of use increase markedly from grade 4 to grade 6 and according to verbal intelligence; this trend is also apparent in the Loban study, although the "leveling out" phase seems to conclude at grade 6. In the present (Nebraska) study the two patterns, 1 2B 5 and 1 2B 5A may be combined for a more effective comparison. Although percentages shift from group to group within the same grade level, it is difficult to discern any marked trend. It is interesting to note that the professionals used the 1 2B 5A pattern more often than any group of elementary children, but used the 1 2B 5 pattern less than almost any of the children's groups. When the 1 2B 5 and 1 2B 5A patterns are combined, there is no regular trend; in fact, the proportion of sentences having copulative verbs stays approximately the same at all levels. Thus, the sentence with a linking verb does not seem to be an indication of language maturity in written language, as Strickland suggests it is in the spoken. One may question whether it is in the spoken. The passive voice, as indicated by the frequencies of the 1 2P pattern in Table 14, is used infrequently by all groups. A slight rise in its use appears in grades 4 and 5, but this increase has no corollary in the sixth grade sample nor in the Professional Writers' Sample.[2]

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[2] The passive hardly appears in Loban's analysis, and the Strickland instrument did not discriminate between passive and intransitive copulative (p. 19).

The fact that students were asked to write a narrative for the writing sample, the nature of the narrative in the sampling situation may account for a somewhat disproportionate frequency of T1 and I1 constructions, that is, sentences beginning with the expletive "there was" or "it was." The high proportion of this "there was" structure at primary levels seems to result from the standard narrative beginning, "Once upon a time there was. . ." Children at all grades use a substantially larger proportion of the pattern than do professional writers. (As will be noted, the percentages on this construction reveal an interesting Control-Experimental comparison.)

Questions (W) appear very infrequently in the Loban study of oral discourse. Although question sentences are relatively infrequent in the present sample, they do occur, and with a somewhat unsteady rise in frequency according to grade level. Inverted structures exhibit a steadier rise, an apparent approach toward the professional writers' performance. Sentences with compound predicates, treated more explicitly in a subsequent table, are substantially present at each grade level, the percentages rising slightly but failing to match the professional sample.

A generalization arising from prior studies is that children of all grade levels are capable of using and do use all major sentence patterns. To a considerable extent, the evidence of this study supports the above generalization, revealing the presence of most patterns in written composition at nearly all grade levels. But there is danger of misinterpretation. Certainly the single or dual instance of a passive verb pattern, an inversion, or a 1 2 4 6 pattern, used by one subject out of 100, cannot be considered evidence that all or even a major proportion of subjects know or can use the pattern. What these data do suggest is that some children at each grade level utilize nearly all patterns; that proportionate use of various patterns alters by grade level, more often than not approaching the proportion used by professionals. If the question of whether children of certain ages are aware of all patterns is to be answered thoroughly, further research will require a technique of eliciting awareness in a manner more refined than the "free response" technique of composition sampling. In any case, one should perhaps question the facile assertion--made by some linguists and some school people--that children command all of the English syntactic structures when they come to school. If they do, they do not show it in situations such as this experiment provided. And if they do, the frequency of their choice of a structure may be as important as whether they do or do not command it.

II. INTERPRETATION OF SENTENCE PATTERN FREQUENCIES: EXPERIMENTAL-CONTROL COMPARISON

What are the apparent differences between Experimental and Control groups in the use of major sentence patterns? What differences might be inferred to have resulted from the experimental treatment--that is, the optional use of the Nebraska Curriculum materials designed to teach written composition through literary models and conscious analysis of prose style. It should be understood that the experimental classes had Nebraska materials available and used them as teachers saw fit. They were not carefully supervised; they were not told to proceed on a step by step basis. Less than half of the teachers had had extensive training in English or in the use of this particular program; its uses were reasonably new to all; and no one was under profound administrative pressure to use the program. The Nebraska Curriculum Center did question teachers at the end of the year to discover whether they had used the material and how much. Generally, almost all teachers had used the literature program with fair thoroughness; the teaching of the composition and linguistic side of the program was, at best, spasmodic. Hence, the results here described may suggest what a "New English" program in which literature is held up, consciously or unconsciously, as a model for children's writing, in which the pressure of prescription is reasonably light, and in which the study of syntactic patterns without grammatical terminology is of occasional concern--what such a program does for the child's use of written syntax. The conclusions given here must be considered heuristic rather than conclusive; they may, at this point, give guidance on important and inadequately explored problems of method. More important, such inferences may point the way to profitable further research.

The reader's attention is directed to six trends discernible from comparison, grade by grade, of the Control with the two Experimental groups (Table 14).

1. At grade 5 level, one sees a rise in Experimental 1 2 patterns which surpasses the frequency of such patterns by the Control group. This upward trend is continued by the 6E2 group. There is, nevertheless, little real deviation in the use of this pattern by any group throughout the elementary school: to move from the 2C and 4C groups to the 6E2 and the Professional groups is to move through a range of one-fourth of all sentence patterns to about one-third of them. One may assume that the 1 2 pattern, (used slightly more often by Experimental intermediate grade pupils) constitutes a handy tool available to all levels, used by all with about the same frequency--but perhaps not used with the same facility and skill. The latter point deserves a special look at levels deeper than the first level and when patterns which vary more completely than the major sentence patterns are involved. In other words, one may ask whether some pupils utilize their 1 2 pattern more effectively than others.

2. Recent studies have lamented the overuse in school texts and in other instructional materials of the 1 2 4 pattern in children's compositions. Certainly this inference seems supported when one observes 2C's use the pattern 42% of the time while the Professional Writers use it only 26% of the time. (The

marked decline of use of this pattern with advance in grade level has already been noted.) The decline is greater for the Experimental groups--particularly at grades 5 and 6. In fact, the 31% use of 1 2 4 pattern by 3C, 4C, and 5C is consistently higher than the use of the pattern by any matching experimental group, excepting 4E2. Here again, Experimental groups seem slightly to surpass Control groups on approaching the professional criterion--if criterion it be.

3. The greatest fluctuation is apparent in the use of the T1 pattern, and this partially attributable to the construction "Once upon a time there was..." frequently used in primary school composition. One may also observe from this table that the professional writers sampled use the "There is" pattern less frequently than any group, grades 2 through 5, though the 6E2 frequency is approximately the same as that of the professionals. Perhaps the subject matter of the compositions and the pupils' ability to control the T1 option constitute concurrent factors, bringing the T1 pattern use into proportion. One may hypothesize that Experimental groups, having used this pattern often at grades 2 and 3 outgrow it and use it less frequently than their Control counterparts during the intermediate grades. They may come to recognize the formulaic as formulaic and discard it when it will not do.

4. The question pattern (W) is used infrequently in most narratives--except for direct quotations (cf. the .8% for the Professional Writers' sample). That pupils when they move from grades 2 - 4 gradually use more of the W structures may indicate that they gradually come to have an increased ability to opt for direct discourse in their narratives, and experimental pupils at grades 4 and 5 surpass their counterparts in the use of W structures by a substantial frequency. Is this increased frequency of use of W structures a matter of "healthy" experimentation with dialogue, or is it a matter of ineffective overuse? Does the nature of narrative which children construct more suitably utilize questions? Do

literary models present the child with the W option in so forceful a manner as to influence his style? We cannot say from our researches. We can pose the question for future researchers.

Figure 2

Literary Models of W Construction

Grade 2: The Story of Ferdinand

"Then came the bull, and you know who that was don't you?"

Grade 3: Mr. Popper's Penguins, p. 88.

"'Do I pay half-fare for the birds, or do they go free?' asked Mr. Popper."

Grade 5: The Lion, the Witch and the Wardrobe, p. 8.

"'But you are--forgive me--you are what they call a girl?' asked the Faun."

5. The development of inversions, excluding questions, appears to go up and up throughout the grades, until for some groups at fourth and fifth grade level the frequency exceeds that of the Professionals. The most notable increase takes place in groups 4E1, 5E1, and 5E2. In fact, these Experimental group frequencies are substantially above those of Controls. An inversion (a structure in which subject, verb, and/or object or complement slots appear in other than normal order) may evidence the sophistication of an ability, the use of a freedom to opt for a less-used structure to secure emphasis or a clever logic:

"Then out flew a beautiful blue and white bird."

Or it may simply result from the child's resort to an idiom (He ran and so did I). Nearly half of the inversions which appeared in the combined samples resulted from the rather common practice of naming the speaker in direct discourse: e.g. "'35,000 feet,' said copilot John Richards to pilot Don Williams." But the remaining inversions, as exemplified in figures 3 and 4, below, seem to indicate an awareness and a skill in varying sentence order for emphasis; and this ability, albeit infrequent, is present among individuals in both the Control and the Experimental groups of each grade level.

Figure 3

Inversions (Control Groups)

Example	Grade
One she named Tam.	Grade 2, Control
Zoom goes the airplane to town to town.	Grade 3, Control
A long time ago lived a pink poodle named Shoe-Shoe.	Grade 4, Control
Around the corner and down the street is a bowling alley.	Grade 5, Control
In barn 24 stable 35 is a black horse with a white strip down his face.	Grade 5, Control
Along with him was his partner, Bob.	Grade 5, Control
Underneath the roots of a giant tree sleeps White Lightning.	Grade 6, Control
Things at the market such as bread we may not touch.	Grade 6, Control

Figure 4

Inversions (Experimental Groups)

Example	Grade
On the bench was a soup.	Grade 2, Experimental
Once lived a boy who always wanted a dog.	Grade 2, Experimental
Then out flew a beautiful blue and white bird.	Grade 4, Experimental
So beautiful was she she was a treasure.	Grade 5, Experimental
S-l-a-m went a door.	Grade 5, Experimental
There on my bed sat a doll.	Grade 5, Experimental

6. Let us look finally at compound predicates. The reader is again referred to the definition of a communication unit used in this study: "whenever 'sentence patterns' are discussed, it is actually the patterns of independent clauses which are being considered." Strictly speaking, the present discussion of data is a discussion of patterns of what Hunt calls the "T-unit." One should point out that "Compounds" on Table 14 refers to compound predicates, rather than compound sentences, compound sentences necessarily being treated as more than one sentence in this study because of the inconsistency of punctuation of children.

The compounding of predicates may be indicative of linguistic sophistication, perhaps about as indicative as such other measures as sentence complexity (LaBrant), clause length (K. Hunt), and the like. While the compounding of clauses may simply be a matter of introducing an "and" or "but" to otherwise independent structures, the use of compound predicates with a single subject may indicate a capacity to perceive a causal or relational ability and to express it. (See Vigotsky, 66:509-537.) Whether or not this is true cannot be answered at the present time. However, the use of compounds does show a steady progression from second to sixth; in fact, the frequency approximately doubles in this span, the sixth grade use the compound predicate almost as often as do the Professionals. In the most cases, especially in the lower grades, the Experimental classes used the compound predicate with greater frequency than did their control counterparts. (See Table 14.)

If one looks at each of these six trends noted above, one is driven to conclude that the data do to some degree support the hypothesis that the experimental treatment, however informally administered, enables elementary school pupils to approach a criterion inferred from the writings of professionals. The evidence may be considered slight; yet it is notable in view of the fact that some recent studies have suggested smaller differences between the various age levels in frequency of use of major patterns than is here evident from grade to grade and from Experimental to Control groups.

It is interesting to note that for almost every pattern, the difference between second and sixth grades is greater than the difference between sixth graders and professional writers. Thus, sixth graders' choice of sentence patterns is more like that of professional writers than like that of second graders.

The evidence from this Level 1 major-clause analysis suggests the value of a Control-Experimental comparison involving a) presence or absence of fixed and movable slots used within each of the major sentence patterns, and b) sub-patterns used within slots. The former, being a further part of the Level 1 analysis, comprises the remainder of the present chapter. The latter, an analysis of slot patterns, appears in the ensuing chapter.

C

III. VARIATIONS OF MAJOR SENTENCE PATTERNS BY ADVERBIAL PLACEMENT

Subject-Verb (1 2) Patterns. The use of the simple subject-verb pattern with no adverbials, ranges from a high of 18.1 percent of all 1 2 sentences (2E2) to a low of 5.3 percent (4E2) for the student groups and 3.4 percent for Professionals. (See Table 15.) Apparently professional writers seldom use the unexpanded 1 2 pattern; in only five sentences out of 500 was the 1 2 pattern used without adverbial modifiers. The most common variation of 1 2 patterns is that with one or more adverbials following the verb. Usually, adverbials in this position are those of place, time, or manner:

He went home.

He went yesterday.

He went quickly.

Frequently more than one adverbial appears in this position: "He went home quickly yesterday." From 63 percent to 93 percent of all 1 2 patterns have modifiers following the verb. In many cases sentences with final adverbials also have adverbials in other positions.

Subject-Verb-Object (1 2 4) Patterns. (Table 16) Simple 1 2 4 (subject-verb-object) patterns, without adverbials, account for 65.8 percent of all subject-verb-object sentences in the second grade Control group and only 37.4 percent in the Professional Writers. This sentence variety becomes less frequent as the children mature and is also less frequently used by Experimental than by Control groups. As is true with other sentence patterns, the addition of adverbials to the 1 2 4 patterns generally increases with the maturity of the writer. And, as with other patterns, when adverbials are added to the sentences they normally are placed either before or after the subject-verb-object cluster rather than between or within slots. Depending on the group, from 13.7 percent to 35 percent of the

Table 15

FREQUENCY AND PERCENT OF THE OCCURRENCE OF VARIATIONS OF THE 1 2 PATTERN ACCORDING TO POSITIONS OF ADVERBIALS

	Groups											
	2C		2E1		2E2		3C		3E1		3E2	
	T* = 115		T* = 108		T* = 116		T* = 127		T* = 73		T* = 74	
Variations of the 1 2 pattern	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
with no adverbials	10	8.7	13	12	21	18.1	17	13.4	5	6.8	5	6.8
with initial adverbial	6	5.2	3	2.8	8	6.9	9	7.1	3	4.1	4	5.4
with medial adverbials			4	3.7					2	2.7		
with initial and medial adverbials							1	.8				
with medial and final adverbials	2	1.7	5	4.6	1	.9	5	3.4	2	2.7	1	1.4
with initial medial, and final adverbials							1	.8			1	1.4
with final adverbials	74	64.3	61	56.5	52	44.9	69	54.3	38	52.1	38	51.4
with initial and final adverbials	23	20	22	20.4	34	29.3	25	19.7	23	31.5	25	33.8

*T indicates total occurrences of communication units with 1 2 patterns within each group

Table 15

FREQUENCY AND PERCENT OF THE OCCURRENCE OF VARITIONS OF THE 1 2 PATTERN ACCORDING TO POSITIONS OF ADVERBIALS

	Groups											
	4C		4E1		4E2		5C		5E1		5E2	
	T* = 115		T* = 60		T* = 57		T* = 137		T* = 34		T* = 59	
Variations of the 1 2 pattern	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
with no adverbials	14	12.2	6	10	3	5.3	9	6.6	3	8.8	7	11.8
with initial adverbial	9	7.8	3	5	5	8.8	33	24.1	2	5.9	5	8.5
with medial adverbials							1	.7			1	1.7
with initial and medial adverbials	1	.9			1	1.8						
with medial and final adverbials	2	1.7	1	1.7	1	1.8	6	4.4			5	8.5
with initial, medial, and final adverbials	1	.9					1	.7	2	5.9	2	3.4
with final adverbials	63	54.8	32	53.3	27	47.4	67	49	13	38.2	30	50.8
with initial and final adverbials	25	21.7	18	30	20	35.1	20	14.6	14	41.2	9	15.3

*T indicates total occurrences of communication units with 1 2 patterns within each group

Table 15

FREQUENCY AND PERCENT OF THE OCCURRENCE OF VARIATIONS OF THE 1 2 PATTERN ACCORDING TO POSITIONS OF ADVERBIALS

	Groups					
	6C		6E2		Prof.	
	T* = 121		T* = 30		T* = 149	
Variations of the 1 2 pattern	Freq.	%	Freq.	%	Freq.	%
with no adverbials	14	11.5	2	6.7	5	3.4
with initial adverbial	6	5			5	3.4
with medial adverbials	1	.8	1	3.3	1	.7
with initial and medial adverbials						
with medial and final adverbials					6	4
with initial, medial, and final adverbials					1	.7
with final adverbials	70	57.9	19	63.3	88	58.9
with initial and final adverbials	30	24.8	8	26.7	43	28.9

*T indicates total occurrences of communication units with 1 2 patterns within each group

Table 16

FREQUENCY AND PERCENT OF THE OCCURRENCE OF VARIATIONS OF THE 1 2 4 PATTERN ACCORDING TO POSITION OF ADVERBIALS

	Groups											
	2C		2E1		2E2		3C		3E1		3E2	
	T* = 190		T* = 120		T* = 153		T* = 154		T* = 80		T* = 73	
Variations of the 1 2 4 pattern	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
with no adverbials	125	65.8	69	57.5	86	56.2	92	59.8	30	37.5	38	52.1
with initial adverbials	26	13.7	33	27.5	33	21.6	30	19.5	28	35	13	17.8
with medial adverbials	4	2.1	3	2.5	4	2.6	3	2	2	2.5	4	5.5
with initial and medial adverbials	1	.5					2	1.3			1	1.4
with medial and final adverbials					2	1.3			2	2.5	2	2.7
with initial, medial, and final adverbials												
with final adverbials	29	15.3	5	4.2	22	14.4	22	14.3	17	21.3	12	16.4
with initial and final adverbials	5	.3	10	8.3	6	4	5	3.2	1	1.3	3	4.1

*T indicates total occurrences of communication units with 1 2 4 patterns within each group

Table 16

FREQUENCY AND PERCENT OF THE OCCURRENCE OF VARIATIONS OF THE 1 2 4 PATTERN ACCORDING TO POSITION OF ADVERBIALS

	Groups											
	4C		4E1		4E2		5C		5E1		5E2	
	T* = 146		T* = 57		T* = 75		T* = 144		T* = 28		T* = 38	
Variations of the 1 2 4 pattern	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
with no adverbials	73	50	31	54.4	32	42.7	68	47.2	12	42.9	14	36.8
with initial adverbials	41	28.1	16	28.1	14	18.7	31	21.5	9	32.1	11	28.9
with medial adverbials	12	8.2	2	3.5	5	6.7	4	2.8			2	5.3
with initial and medial adverbials					1	1.3	2	1.4				
with medial and final adverbials	1	.7			1	1.3						
with initial, medial, and final adverbials												
with final adverbials	15	10.2	5	8.8	16	21.3	26	18.1	5	17.9	7	18.4
with initial and final adverbials	4	2.7	3	5.3	6	8	13	9	2	7.1	4	10.5

*T indicates total occurrences of communication units with 1 2 4 patterns within each group

Table 16

FREQUENCY AND PERCENT OF THE OCCURRENCE OF VARIATIONS OF THE 1 2 4 PATTERN ACCORDING TO POSITION OF ADVERBIALS

	Groups					
	6C		6E2		Prof.	
	T* = 120		T* = 20		T* = 131	
Variations of the 1 2 4 pattern	Freq.	%	Freq.	%	Freq.	%
with no adverbials	45	37.5	8	40	49	37.4
with initial adverbials	25	20.8	4	20	20	15.3
with medial adverbials	6	5			16	12.2
with initial and medial adverbials	4	3.3	1	5	5	3.8
with medial and final adverbials	2	1.7			3	2.3
with initial, medial, and final adverbials	1	.8			3	2.3
with final adverbials	29	24.2	6	30	28	21.4
with initial and final adverbials	8	6.7	1	5	7	5.3

*T indicates total occurrences of communication units with 1 2 4 patterns within each group

1 2 4 sentences have adverbials used only before the subject. Although the 2C group has the lowest percentage, the Professional group also has one of the lowest; there seems to be no discernible pattern of progression. 1 2 4 sentences with modifiers following major slots appear most often in the 6th grade and Professional group, and would seem to be syntactically desirable although there is not a steady increase from one grade to another. Combining all 1 2 4 sentences with adverbials between or within major slots, one finds that they comprise 20.6 percent of all 1 2 4 sentences for Professionals while the range for the children's groups is from 0 percent (5E1) to 9.6 percent (3E2).

Subject-Verb-Complement (1 2B 5) Pattern. (Table 17) For the Professional Writers 59.6 percent of all 1 2B 5 (subject-verb-complement) sentences contained no adverbials. The percentage was considerably higher for all the student groups (72 percent to 100 percent). 1 2B 5 patterns with adverbials used only preceding the subject were not frequent in any group and showed no trend either up or down. There was, on the other hand, a considerable use by Professional Writers of adverbials following 1 2B 5 patterns. In fact, 29.8 percent of all the Professionals' 1 2B 5 sentences had adverbials following complements, whereas for the student groups the percentages ranged from 0 to 18.2 percent. There was, however, no sturegular increase in the use of 1 2B 5 sentences with final adverbials in the student groups.

Subject-Verb-Adjective (1 2B 5A) Pattern. (Table 18) The distribution of variations of the 1 2B 5A pattern was somewhat similar to that of the 1 2B 5 pattern. For the Professional Writers, 42.1 percent had adverbials following the adjective complement, a considerably larger percentage than for any student group. The percentages for the student groups ranged from 0 to 33 1/3 percent. While 40.4 percent of the Professionals' 1 2B 5A sentences had no adverbials, the percentage for

Table 17

FREQUENCY AND PERCENT OF THE OCCURRENCE OF VARIATIONS OF THE 1 2B 5 PATTERN ACCORDING TO POSITIONS OF ADVERBIALS

	Groups											
	2C		2E1		2E2		3C		3E1		3E2	
	T* = 49		T* = 20		T* = 45		T* = 57		T* = 33		T* = 35	
Variations of the 1 2B 5 pattern	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
with no adverbials	43	87.8	19	95	36	80	52	91.2	30	91	30	85.7
with initial adverbials	3	6.1	1	5	4	8.9	2	3.5	1	3	2	5.7
with medial adverbials							1	1.8	2	6	1	2.9
with initial and medial adverbials												
with medial and final adverbials												
with initial, medial, and final adverbials												
with final adverbials	3	6.1			5	11.1	1	1.8			2	2.9
with initial and final adverbials							1	1.8				

*T indicates total occurrences of communication units with 1 2B 5 patterns within each group

Table 17

FREQUENCY AND PERCENT OF THE OCCURRENCE OF VARIATIONS OF THE 1 2B 5 PATTERN ACCORDING TO POSITIONS OF ADVERBIALS

	Groups											
	4C		4E1		4E2		5C		5E1		5E2	
	T* = 67		T* = 25		T* = 23		T* = 47		T* = 7		T* = 22	
Variations of the 1 2B 5 pattern	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
with no adverbials	55	82.1	18	72	17	74	35	74.5	7	100	16	72.7
with initial adverbials	3	4.5	3	12			8	17			2	9
with medial adverbials	5	7.4			2	8.7						
with initial and medial adverbials												
with medial and final adverbials												
with initial, medial, and final adverbials												
with final adverbials	4	6	4	16	4	17.4	4	8.5			4	18.2
with initial and final adverbials												

*T indicates total occurrences of communication units with 1 2B 5 patterns within each group

Table 17

FREQUENCY AND PERCENT OF THE OCCURRENCE OF VARIATIONS OF THE 1 2B 5 PATTERN ACCORDING TO POSITIONS OF ADVERBIALS

	Groups					
	6C		6E2		Prcf.	
	T* = 54		T* = 15		T* = 47	
Variations of the 1 2B 5 pattern	Freq.	%	Freq.	%	Freq.	%
with no adverbials	47	87	14	93.3	28	59.6
with initial adverbials	1	1.9			1	2.1
with medial adverbials	3	5.6			2	4.3
with initial and medial adverbials					1	2.1
with medial and final adverbials						
with initial, medial, and final adverbials						
with final adverbials	3	5.6	1	6.7	14	29.8
with initial and final adverbials					1	2.1

*T indicates total occurrences of communication units with 1 2B 5 patterns within each group

Table 18

FREQUENCY AND PERCENT OF THE OCCURRENCE OF VARIATIONS OF THE 1 2B 5A PATTERN ACCORDING TO POSITIONS OF ADVERBIALS

	Groups											
	2C		2E1		2E2		3C		3E1		3E2	
	T* = 41		T* = 26		T* = 44		T* = 49		T* = 11		T* = 24	
Variations of the 1 2B 5A pattern	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
with no adverbials	27	65.9	20	77	34	77.3	36	73.5	4	36.4	16	66.7
with initial adverbials			4	15.2	5	11.4	8	16.3	5	45.5	2	8.3
with medial adverbials					2	5					1	4.2
with initial and medial adverbials			1	3.9								
with medial and final adverbials												
with initial, medial, and final adverbials												
with final adverbials	12	29.3	1	3.9	3	6.8	5	10.2	2	18.2	4	16.6
with initial and final adverbials	2	4.9									1	4.2

*T indicates total occurrences of communication units with 1 2B 5A patterns within each group

Table 18

FREQUENCY AND PERCENT OF THE OCCURRENCE OF VARIATIONS OF THE 1 2B 5A PATTERN ACCORDING TO POSITIONS OF ADVERBIALS

	Groups											
	4C		4E1		4E2		5C		5E1		5E2	
	T* = 40		T* = 19		T* = 12		T* = 35		T* = 4		T* = 13	
Variations of the 1 2B 5A pattern	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
with no adverbials	20	50	9	47.4	6	50	24	68.6	4	100	6	46.2
with initial adverbials	3	7.5	3	15.8	2	16.7	4	11.4			6	46.2
with medial adverbials	4	10					2	5.7				
with initial and medial adverbials			1	5.3							1	7.7
with medial and final adverbials												
with initial, medial, and final adverbials												
with final adverbials	12	30	4	21.1	4	33.3	5	14.3				
with initial and final adverbials	1	2.5	2	10.5								

*T indicates total occurrences of communication units with 1 2B 5A patterns within each group

Table 18

FREQUENCY AND PERCENT OF THE OCCURRENCE OF VARIATIONS OF THE 1 2B 5A PATTERN ACCORDING TO POSITIONS OF ADVERBIALS

	Groups					
	6C		6E2		Prof.	
	T* = 38		T* = 6		T* = 57	
Variations of the 1 2B 5A pattern	Freq.	%	Freq.	%	Freq.	%
with no adverbials	24	63.2	4	56.7	23	40.4
with initial adverbials	4	10.5			8	14
with medial adverbials	2	5.2				
with initial and medial adverbials					1	3.5
with medial and final adverbials						
with initial, medial, and final adverbials						
with final adverbials	5	13.2	2	33.3	23	40.4
with initial and final adverbials	3	7.9			1	1.7

*T indicates total occurrences of communication units with 1 2B 5A patterns within each group

this sentence sub-type was considerably higher for most of the student groups. There were a few instances of 1 2B 5A's with adverbials preceding the subject used by Professional Writers. Likewise, this sentence type appeared occasionally in most student groups.

Expletive (T1) Pattern. (Table 19) As was noted previously the sentences beginning with the expletive there or it decrease in frequency after the third grade and are least common of all in the sixth grade and Professional groups. In the lower grades most of the sentences have an adverbial preceding the expletive, usually once or once upon a time. Sentences like "Once upon a time there was. . ." naturally decrease in frequency among the older children and seldom appear in adult writing. Expletive there sentences preceded by an adverbial element account for less than half of expletive sentences among the Professional Writers and only one-third among the sixth grade Experimental group; however, this same sentence type comprises more than half of all other groups, and in many is higher than 80 percent. It appears that when younger children opt to use a sentence beginning with "there," in most cases they simultaneously opt to precede it by an adverbial of time, most often "once" or "Once upon a time."

Summary of Sentence Sub-types. (Table 20) When sub-types of sentences were grouped together according to the placement of adverbials, the following results obtained: there were found to be more sentences with adverbials among the Experimental than the Control group with one exception and Professional Writers used adverbials more frequently than any group of children does. There was generally a decrease in the higher grades in the use of sentences without adverbials. Among the Professional Writers the most common placement of adverbials for all sentence types was in the terminal position. From grades two through five there was little change in the percentage of sentences which contain final adverbials. However,

Table 19

FREQUENCY AND PERCENT OF THE OCCURRENCE OF VARIATIONS OF THE T1 I1 PATTERNS ACCORDING TO POSITIONS OF ADVERBIALS

	Groups											
	2C		2E1		2E2		3C		3E1		3E2	
	T* = 28		T* = 57		T* = 56		T* = 55		T* = 33		T* = 40	
Variations of the T1 I1 patterns	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
with no adverbials	6	21.4	7	12.3	3	5.4	5	9	6	18.2	6	15
with initial adverbials	16	57.1	50	87.7	50	89.3	47	85.5	21	63.6	32	80
with medial adverbials							2	3.6	2	6.1	2	5
with initial and medial adverbials									1	3		
with medial and final adverbials												
with initial, medial, and final adverbials												
with final adverbials	3	10.7			2	3.6	1	1.8	1	3		
with initial and final adverbials	3	10.7			1	1.8			2	6.1		

*T indicates total occurrences ofcommunication units with T1 or I1 patterns within each group

Table 19

FREQUENCY AND PERCENT OF THE OCCURRENCE OF VARIATIONS OF THE T1 I1 PATTERNS ACCORDING TO POSITIONS OF ADVERBIALS

	Groups											
	4C		4E1		4E2		5C		5E1		5E2	
	T* = 46		T* = 18		T* = 19		T* = 37		T* = 5		T* = 15	
Variations of the T1 I1 patterns	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
with no adverbials	4	8.7	5	27.8	4	21.1	9	24.3	1	20	1	6.7
with initial adverbials	38	82.6	13	72.2	14	73.7	22	59.5	4	80	12	80
with medial adverbials	2	4.3			1	5.3	5	13.5			2	13.3
with initial and medial adverbials												
with medial and final adverbials												
with initial, medial, and final adverbials												
with final adverbials	2	4.3					1	2.7				
with initial and final adverbials												

*T indicates total occurrences of communication units with T1 or I1 patterns within each group

Table 19

FREQUENCY AND PERCENT OF THE OCCURRENCE OF VARIATIONS OF THE T1 I1 PATTERNS ACCORDING TO POSITIONS OF ADVERBIALS

	Groups					
	6C		6E2		Prof.	
	T* = 32		T* = 3		T* = 19	
Variations of the T1 I1 patterns	Freq.	%	Freq.	%	Freq.	%
with no adverbials	4	12.5	1	33.3	8	42.1
with initial adverbials	17	53.1	1	33.3	2	10.5
with medial adverbials	4	12.5	1	33.3		
with initial and medial adverbials					1	5.3
with medial and final adverbials					1	5.3
with initial, medial, and final adverbials						
with final adverbials	2	6.3			7	36.8
with initial and final adverbials	5	15.6				

*T indicates total occurrences of communication units with T1 or I1 patterns within each group

Table 20

FREQUENCY AND PERCENT OF PLACEMENT OF ADVERBIALS IN ALL COMMUNICATION UNITS

	Groups											
	2C		2E1		2E2		3C		3E1		3E2	
	T* = 452		T* = 365		T* = 464		T* = 487		T* = 265		T* = 277	
Variations of all patterns	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
with no adverbials	227	50.2	137	37.5	196	42.2	216	44.4	88	33.2	106	38.3
with initial adverbials	52	11.5	97	26.6	109	23.5	102	21	64	24.2	56	20.2
with medial adverbials	5	1.1	10	2.7	7	1.5	7	1.4	8	3	9	3.2
with initial and medial adverbials	1	.2	2	.5	1	.2	3	.6	1	.4	1	.4
with medial and final adverbials	2	.4	6	1.6	4	.9	8	1.6	5	1.9	4	1.4
with initial, medial, and final adverbials							1	.2			1	.4
with final adverbials	129	28.5	81	22.2	101	21.8	112	23	67	25.3	66	23.8
with initial and final adverbials	36	8	32	8.8	46	10	38	7.8	32	12.1	34	12.3

*T is the total sample of communication units within each group

Table 20

FREQUENCY AND PERCENT OF PLACEMENT OF ADVERBIALS IN ALL COMMUNICATION UNITS

	Groups											
	4C		4E1		4E2		5C		5E1		5E2	
	T* = 468		T* = 225		T* = 223		T* = 463		T* = 103		T* = 183	
Variations of all patterns	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
with no adverbials	185	39.5	80	35.6	76	34.1	162	35	36	35	54	29.5
with initial adverbials	101	21.6	50	22.2	39	17.5	104	22.5	17	16.5	39	21.3
with medial adverbials	23	4.9	2	.9	8	3.6	17	3.7			6	3.3
with initial and medial adverbials	1	.2	1	.4	2	.9	2	.4			1	.5
with medial and final adverbials	4	.9	1	.4	5	2.2	6	1.3	1	1	6	3.3
with initial, medial, and final adverbials	1	.2					1	.2	2	1.9	1	.5
with final adverbials	114	24.4	61	27.1	64	28.7	130	28.1	27	26.2	55	30.1
with initial and final adverbials	39	8.3	30	13.3	29	13	41	8.9	20	19.4	21	11.5

*T is the total sample of communication units within each group

Table 20

FREQUENCY AND PERCENT OF PLACEMENT OF ADVERBIALS IN ALL COMMUNICATION UNITS

	Groups					
	6C		6E2		Prof.	
	T* = 449		T* = 84		T* = 500	
Variations of all patterns	Freq.	%	Freq.	%	Freq.	%
with no adverbials	160	35.7	31	36.9	133	26.6
with initial adverbials	62	13.8	7	8.3	44	8.8
with medial adverbials	22	5	2	2.4	23	4.6
with initial and medial adverbials	4	.9	1	1.2	10	2
with medial and final adverbials	4	.9	1	1.2	18	3.6
with initial, medial, and final adverbials	1	.2	1	1.2	8	1.6
with final adverbials	138	30.7	31	36.9	[illegible]	39.6
with initial and final adverbials	58	12.9	10	11.9	66	13.2

*T is the total sample of communication units within each group

the percentages increase somewhat in the sixth grade and also for the Professional group. The use of adverbials both at the beginning and end of the clause regardless of sentence patterns, increased in frequency in the higher grades and with the Professional Writers, and, in grades 2 - 5 was consistently higher in the Experimental groups than in the Control groups. Finally, the other varieties of adverbial placement, specifically those with adverbials between major slots increases in frequency in the upper grades and especially with the Professional Writers. In fact, 11.8 percent of the sentences of Professional Writers have adverbials between or within slots. These may include sentences which also contain adverbials before or after major slots. The 11.8 percent of Professional sentences which contain medial adverbials is much larger than the use of this option by any of the groups of children.

CHAPTER IV

SLOT CONSTITUENTS AND LEVELS

In three recent studies of the syntax of school children (Strickland, Loban, and Hunt), only Hunt did any extensive analysis of the constituents of grammatical slots. Strickland, in The Language of Elementary School Children, identified major slots as nominal, verbal, and adverbial (movables), and further classified the components of slots only as satellites or nuclei, making no further attempt to describe syntactically such constituents. For example, although Strickland says that object slots may consist of a noun or pronoun, a noun plus determiner or qualifier or adjective modifier, noun plus preposition, noun plus clause, or constructions such as ". . .like to start in playing ball," she does not actually use such categories but instead categorizes the constituents only as nuclei and satellites. Strickland recognized fifteen possible syntactic patterns in objects and found that thirteen of these patterns appeared in student's speech. In the present study almost two hundred syntactic variations in the object slot were differentiated.

Strickland's classification of movables, unlike that in the present study, was determined by notional categories; for example, an M1 is an adverbial of place regardless of its position in the sentence or its syntactic structure. It might, for example, be a single word, a phrase, or a clause. Although Strickland's classification is notional, some of the categories of movables apparently overlap several notional ideas. For example, adverbs of limitation, degree, accompaniment, condition, purpose, and assorted others are all classified as M2.

In the present study some slots are identified by the same symbols as those used in the Loban study, specifically noun and verb slots 1 through 6. However, in the present study a distinction is made between predicate nominative (5) and predicate adjective (5A) and also between objective complement (6) and objective adjective (6A), whereas Loban identified them as 5 or 6, making no distinction between nominal and adjectival. Loban identifies all other slots as M or Movable but has no breakdown by sub-type, either notional, syntactic, or positional. Although Loban presents no such analysis, he states: "The possibilities of fruitful analysis at the second level are numerous." (42:15) Loban discusses only sentence patterns and did not investigate the constituents of the sentence-level slots.

Hunt discussed the constituents of noun slots at some length, considering the frequency of use of various types, such as single word noun or pronoun, nouns plus adjective, adverbial, genitive, prepositional, verbal, and clausal modifiers, and clauses and verbal phrases as fillers of noun slots. It was in the structure of noun slots that Hunt found the greatest changes from grade 4 to grade 12. Single word noun or pronoun subjects and objects decrease in frequency as children mature, and complex nominal slots increase. Hunt's analysis of adverbials considered both notional and positional factors.

I. VARIETIES OF NOUN SLOTS

Slot 1. Two bases of comparison, two meaningful denominators, are useful in analyzing patterns within slots. The first is that of total Slot 1's (subjects of clauses) including single words which comprise Slot 1; the second, total number of complex or more-than-one-word Slot 1's. The latter makes possible a comparison of the various types of complex structures. (See tables 21 and 22.)

The proportion of single word constructions to complex constructions is surprisingly stable throughout the grades, the Control and Experimental groups, and even in the Professional Writers' Sample. It appears that all groups make exten-

Table 21

FREQUENCY AND PERCENT OF VARIATIONS OF SLOT 1

	Groups											
	2C		2E1		2E2		3C		3E1		3E2	
	548*		428		569		607		363		346	
Variations	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Single word	377	68.8	261	61	377	66.3	394	64.8	242	66.6	222	64.1
Modifiers and noun	141	25.7	125	29.2	143	25.1	159	26.2	83	22.8	71	20.5
Compound NP	9	1.6	15	3.5	18	3.1	15	2.5	14	3.9	11	3.2
NP and adj. following	3	.5			1	.2						
NP and appos.	1	.2	2	.5	4	.7	1	.2	2	.6	2	.6
NP and prep. phrase	8	1.5	2	.5	6	1	8	1.3	3	.8	11	3.2
NP and verbal phrase	1	.2	7	1.6	10	1.8	11	1.8	10	2.8	15	4.3
NP and adj. clause	6	1.1	15	3.5	10	1.8	15	2.5	9	2.5	13	3.8
Verbal phrase	2	.4	1	.2			1	.2				
Clause							3	.5			1	.3

* indicates total noun slots

Table 21 FREQUENCY AND PERCENT OF VARIATIONS OF SLOT 1

	Groups											
	4C		4E1		4E2		5C		5E1		5E2	
	599*		309		299		586		110		252	
Variations	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Single word	405	67.6	199	64.4	191	63.9	346	59	82	74.6	218	86.4
Modifiers and noun	132	22	78	25.2	66	22.1	156	26.6	23	20.9	13	5.2
Compound NP	14	2.3	8	2.6	7	2.3	18	3.1	3	2.7	7	2.8
NP and adj. following			1	.3								
NP and appos.	10	1.7	5	1.6	16	5.4	10	1.7	1	.9	1	.4
NP and prep. phrase	12	2	4	1.3	5	1.7	19	3.2			5	2
NP and verbal phrase	16	2.7	8	2.6	10	3.3	9	1.5			3	1.2
NP and adj. clause	6	1	2	.7	4	1.3	22	3.8	1	.9	3	1.2
Verbal phrase	3	.5	1	.3			5	.9			1	.4
Clause	1	.2	3	1			1	.2			1	.4

* indicates total noun slots

Table 21. FREQUENCY AND PERCENT OF VARIATIONS OF SLOT 1

	Groups					
	6C		6E2		Prof.	
	655*		105		744	
Variations	Freq.	%	Freq.	%	Freq.	%
Single word	452	69	89	84.6	471	63.3
Modifiers and noun	137	20.9	10	9.5	159	21.3
Compound NP	26	3.9	1	1	12	1.6
NP and adj. following					2	.3
NP and appos.	9	1.4	2	1.9	11	1.5
NP and prep. phrase	13	2			43	5.8
NP and verbal phrase	7	1.1	2	2	15	2
NP and adj. clause	9	1.4	1	1	16	2.2
Verbal phrase					4	.5
Clause	2	.3			11	1.5

Table 22 FREQUENCY AND PERCENT OF VARIATIONS OF COMPLEX SLOT 1

	Groups											
	2C		2E1		2E2		3C		3E1		3E2	
	171*		167		192		213		121		124	
Variations	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Modifiers and noun	141	83	125	74.8	143	74.5	159	74.6	83	68.6	71	57.3
Compound NP	9	5	15	9	18	9.4	15	7.1	14	11.5	11	8.9
NP and adj. following	3	2			1	.5						
NP and appos.	1	.5	2	1.2	4	2.1	1	.5	2	1.7	2	1.6
NP and prep. phrase	8	5	2	1.2	6	3.1	8	3.8	3	2.5	11	8.9
NP and verbal phrase	1	.5	7	4.2	10	5.2	11	5.1	10	8.3	15	12
NP and adj. clause	6	3	15	9	10	5.2	15	7	9	7.4	13	10.5
Verbal phrase	2	1	1	.6			1	.5				
Clause							3	1.4			1	.8

* indicates total complex noun slots

Table 22

FREQUENCY AND PERCENT OF VARIATIONS OF COMPLEX SLOT 1

	Groups											
	4C		4E1		4E2		5C		5E1		5E2	
	194*		110		108		240		28		34	
Variations	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Modifiers and noun	132	68	78	71	66	61.1	156	65	23	82.1	13	38.2
Compound NP	14	7.2	8	7.3	7	6.5	18	7.5	3	10.7	7	20.6
NP and adj. following			1	.9								
NP and appos.	10	5.2	5	4.5	16	14.8	10	4.1	1	3.6	1	2.9
NP and prep. phrase	12	6.2	4	3.6	5	4.6	19	7.9			5	14.7
NP and verbal phrase	16	8.3	8	7.3	10	9.3	9	3.8			3	8.9
NP and adj. clause	6	3.1	2	1.8	4	3.7	22	9.2	1	3.6	3	8.9
Verbal phrase	3	1.5	1	.9			5	2.1			1	2.9
Clause	1	.5	3	2.7			1	.4			1	2.9

* indicates total complex noun slots

Table 22

FREQUENCY AND PERCENT OF VARIATIONS OF COMPLEX SLOT 1

	Groups					
	6C		6E2		Prof.	
	203*		16		273	
Variations	Freq.	%	Freq.	%	Freq.	%
Modifiers and noun	137	67.6	10	62.5	159	58.2
Compound NP	26	12.8	1	6.2	12	4.4
NP and adj. following					2	.7
NP and appos.	9	4.4	2	12.5	11	4
NP and prep. phrase	13	6.4			43	15.8
NP and verbal phrase	7	3.4	2	12.5	15	5.5
NP and adj. clause	9	4.4	1	6.3	16	5.9
Verbal phrase					4	1.5
Clause	2	1			11	4

* indicates total complex noun slots

sive use of the single word subject; and only a slight decline can be consistently noted in the use of the simplest of the complex units: "Simple Noun Phrase with One Noun," in which all modifiers are single words and precede the noun. For example, 2C's use single word or "Simple Noun Phrase with One Noun" Slot 1's 94.5 percent of the time compared with 85.6 percent for 5C's and 84.7 percent for Professionals. In all cases the combined percentage is greater than 80 percent, leading to the generalization that most of the time writers of narrative use subjects consisting of single words or nouns preceded by modifiers.

What variations in complex Slot 1's can be noted? The most complex pattern--a clause used as a subject--appears infrequently in all groups, even in the Professional Writers' Sample, and the infrequency of its use makes it impossible to make any conclusive generalization. The same may be said about the verbal phrase or the noun phrase including a modifying verbal phrase or clause.

Slot 1's containing a noun phrase plus a prepositional phrase vary considerably throughout the table, although a rise in frequency appears to occur, ranging from the 1 percent of 2E1's to the 14.7 percent of 5E2's (Table 22), the latter being the single case in which this construction as used by elementary subjects approaches the frequency of use of the Professionals.

A construction often considered more sophisticated than the prepositional phrase is the appositive, in this case a noun phrase plus appositive used in Slot 1. Yet several of the elementary groups exceed the Professional writers in proportion of use of this construction, two of them substantially.

Slot 4. As with Slot 1 we have divided the 4 Slots into those consisting of a single word and those which are complex structures. (Table 23) For the Professionals only 13.9 percent of all direct objects were single words; however, the percentage was somewhat higher for all of the elementary groups. Obviously then

FREQUENCY AND PERCENT OF VARIATIONS OF SLOT 4

Table 23

	Groups											
	2C		2E1		2E2		3C		3E1		3E2	
	251*		170		253		248		152		138	
Variations	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Single word	80	31.8	45	25.9	60	23.7	62	25	32	21.1	45	32.6
Modifiers and noun	105	41.8	80	47.2	110	43.8	110	44.5	63	41.4	42	30.4
Compound NP	11	4.4	6	3.5	5	2	8	3.2	7	4.6	5	3.6
NP and adj. following			1	.6	1	.3	1	.4				
NP and appos.			2	1.3	1	.3	1	.4	1	.7	3	2.2
NP and prep. phrase	7	2.8	10	5.9	9	3.5	10	4	10	6.6	7	5.1
NP and verbal phrase	3	1.2	5	2.9	9	3.5	7	2.7	4	2.6	4	2.9
NP and adj. clause	2	.8	2	1.3	5	2	3	1.2	2	1.3	5	3.6
Verbal phrase	13	5.2	4	2.5	14	5.5	16	6.5	5	3.3	8	5.8
Clause	30	12	15	8.9	39	15.4	30	12.1	28	18.4	19	13.8

* Indicates total noun slots

FREQUENCY AND PERCENT OF VERIATIONS OF SLOT 4

Table 23

	Groups											
	4C		4E1		4E2		5C		5E1		5E2	
	254*		136		131		278		52		100	
Variations	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Single word	89	35	59	43.3	43	32.9	51	18.3	12	23.7	39	39
Modifiers and noun	57	22.4	23	16.9	37	28.2	117	42.1	20	38.4	9	9
Compound NP	11	4.3	4	2.9	6	4.6	7	2.9	1	1.9	2	2
NP and adj. following												
NP and appos.	2	.8			3	2.3	3	1.1			1	1
NP and prep. phrase	22	8.7	8	5.9	3	2.3	17	6.1	2	3.7	9	9
NP and verbal phrase	12	4.7	6	4.4	6	4.6	13	4.6	3	5.7	6	6
NP and adj. clause	7	2.8	3	2.3	2	1.5	8	2.8	2	3.7	6	6
Verbal phrase	9	3.5	6	4.4	5	3.8	12	4.3	4	7.6	9	9
Clause	45	17.8	27	19.9	26	19.8	50	17.8	8	15.3	19	19

* indicates total noun slots

FREQUENCY AND PERCENT OF VARIATIONS OF SLOT 4

Table 23

	Groups					
	6C		6E2		Prof.	
	277*		34		409	
Variations	Freq.	%	Freq.	%	Freq.	%
Single word	86	31.1	13	38.2	57	13.9
Modifiers and noun	97	35.1	14	41.2	151	36.9
Compound NP	10	3.6	1	2.9	20	4.9
NP and adj. following					5	1.2
NP and appos.	3	1.1			3	.8
NP and prep. phrase	8	2.9	2	5.9	50	12.2
NP and verbal phrase	11	3.9			16	3.9
NP and adj. clause	8	2.9			20	4.9
Verbal phrase	7	2.5			18	4.4
Clause	47	16.9	4	11.8	69	16.9

* indicates total noun slots

Table 24 FREQUENCY AND PERCENT OF VARIATIONS OF COMPLEX OF SLOT 4

	Groups											
	2C		2E1		2E2		3C		3E1		3E2	
	171*		125		193		186		120		93	
Variations	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Modifiers and noun	105	61.4	80	64	110	57	110	59.2	63	52.5	42	45
Compound NP	11	6.4	6	4.8	5	2.6	8	4.3	7	5.8	5	5
NP and adj. following			1	.8	1	.5	1	.5				
NP and appos.			2	1.6	1	.5	1	.5	1	.8	3	3
NP and prep. phrase	7	4.1	10	8	9	4.7	10	5.4	10	8.3	7	8
NP and verbal phrase	3	1.8	5	4	9	4.7	7	3.8	4	3.3	4	4
NP and adj. clause	2	1.2	2	1.6	5	2.6	3	1.6	2	1.7	5	6
Verbal phrase	13	7.6	4	3.2	14	7.3	16	8.6	5	4.2	8	8
Clause	30	17.5	15	12	39	20.1	30	16.1	28	23.4	19	21

* indicates total complex noun slots

Table 24 FREQUENCY AND PERCENT OF VARIATIONS OF COMPLEX OF SLOT 4

	Groups											
	4C		4E1		4E2		5C		5E1		5E2	
	165*		77		88		227		40		61	
Variations	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Modifiers and noun	57	34.5	23	29.8	37	42	117	51.5	20	50	9	14.8
Compound NP	11	6.8	4	5.2	6	6.8	7	3.1	1	2.5	2	3.3
NP and adj. following												
NP and appos.	2	1.2			3	3.4	3	1.3			1	1.6
NP and prep. phrase	22	13.3	8	10.4	3	3.4	17	7.5	2	5	9	14.7
NP and verbal phrase	12	7.3	6	7.8	6	6.8	13	5.8	3	7.5	6	9.8
NP and adj. clause	7	4.2	3	3.9	2	2.3	8	3.5	2	5	6	9.8
Verbal phrase	9	5.5	6	7.8	5	5.7	12	5.3	4	10	9	14.7
Clause	45	27.2	27	35.1	26	29.6	50	22	8	20	19	31.3

* indicates total complex noun slots

Table 24 FREQUENCY AND PERCENT OF VARIATIONS OF COMPLEX OF SLOT 4

	Groups					
	6C		6E2		Prof.	
	191*		21		352	
Variations	Freq.	%	Freq.	%	Freq.	%
Modifiers and noun	97	50.8	14	66.7	151	42.9
Compound NP	10	5.2	1	4.8	20	5.7
NP and adj. following					5	1.4
NP and appos.	3	1.6			3	.9
NP and prep. phrase	8	4.2	2	9.5	50	14.2
NP and verbal phrase	11	5.8			16	4.5
NP and adj. clause	8	4.2			20	5.7
Verbal phrase	7	3.7			18	5.1
Clause	47	24.5	4	19	69	19.6

* indicates total complex noun slots

the complex objects (those consisting of something other than a single word) are used more frequently by the Professionals than by the children. Of the varieties of complex structures the most common for most groups is the noun phrase consisting of a noun preceded by a determiner, one or more adjectives, or other modifiers. (Table 24) When the total number of single word objects is added to the total number of simple noun phrases with modifiers preceding, there is a rather steady decrease from the lower grades to the Professionals. Compound objects (those consisting of more than a single noun or pronoun) appear most often in the writing of Professionals. In no group does the compound object comprise more than five percent of the objects; children in lower grades, however, use this construction slightly more often than those in intermediate grades. The use of a noun phrase followed by a modifying prepositional phrase generally increases in frequency in the intermediate grades and is used much more frequently by the Professional Writers than by any of the groups of children. The use of a noun phrase plus a modifying verbal phrase increases steadily from second grade to the fifth, and Professionals use this variety of object slightly less often than the fourth and fifth grade children. In a similar manner, the use of noun phrases followed by a modifying clause increases steadily from the second grade to the fifth and appears most frequently in the writing of the Professionals and the Experimental fifth grade groups. In most grades this structure is used with greater frequency by the Experimental than by the Control groups. Surprisingly the use of verbal phrases seems to show no regular increase although they appear most often in the writing of the two fifth grade Experimental groups. The use of clauses as objects accounts for 16.9 percent of all objects for the Professional group and varies from about 9 to 20 percent for the groups of children. Although the clausal object would seem to be a structure showing linguistic maturity, sentences like "He hopes she will come" which contain a clause as object show relatively little syntactic sophistication.

Slot 5. As with the 4 Slots, the 5 Slots (predicate complements) which are single words are used less frequently by the Professional writers than by any group of children. (See Table 25.) The use of noun phrases including modifying prepositional phrases in the 5 Slot increases in frequency steadily from the second grade to the Professional writers. This is also generally true of the noun phrase plus modifying verbal phrase in complement slots. There is, likewise, a similar increase in the use of noun phrase plus clause. Clauses used as complements account for 5.8 percent of all 5 Slots for the Professionals and 7.1 percent of complex 5 Slots, the highest figures for any group. (Tables 25 and 26)

In the overall picture, it is fairly clear that Professionals, when they opt to use Slot 5's, choose single word and simple noun phrases less frequently than do elementary children: 53.6 percent for Professionals as compared with a range of 87.2 percent (3C) down to 63.2 percent (6E2). When Professionals or elementary children opt the more complex constructions in Slot 5 the results, as indicated in this table, present no clear trends except those cited above.

Total Noun Slots. The syntactic varieties of the three most frequently used noun slots--subject, object, and complement--were combined to provide greater totals in the hope that more meaningful trends might be revealed in the use of the varieties of the noun phrase--single word, verbal phrase, clause, etc. The noun phrase consisting of a single word is used least often by Professional writers; however, there is not the decline in use as children mature which one might expect. Actually, with a few exceptions in the fifth and sixth grade groups, all groups use the single word noun phrase with approximately equal frequency--from 51 to 58 percent of all noun phrases. (See Table 27.)

The use of the simple noun phrase consisting of a single noun preceded by one

Table 25

FREQUENCY AND PERCENT OF VARIATIONS OF SLOT 5

	Groups											
	2C		2E1		2E2		3C		3E1		3E2	
	61*		34		67		86		46		58	
Variations	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Single word	19	31.2	21	61.8	34	50.7	49	57	28	60.9	36	62.2
Modifiers and noun	31	50.9	6	17.8	20	29.8	26	30.2	10	21.8	13	22.4
Compound NP	5	8.2	3	8.8	3	4.5	1	1.2	2	4.3	1	1.7
NP and adj. following							1	1.2				
NP and appos.	1	1.6	1	2.9			1	1.2			1	1.7
NP and prep. phrase	2	3.3			3	4.5	6	6.9	1	2.2		
NP and verbal phrase	1	1.6	1	2.9	3	4.5	2	.2.3			2	3.4
NP and adj. clause	1	1.6	1	2.9	2	3			2	4.3	2	3.4
Verbal phrase	1	1.6	1	2.9					1	2.2		
Clause					2	3			2	4.3	3	5.2

* indicates total noun slots

Table 25 FREQUENCY AND PERCENT OF VARIATIONS OF SLOT 5

	Groups											
	4C		4E1		4E2		5C		5E1		5E2	
	103*		39		46		69		15		35	
Variations	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Single word	46	44.7	17	43.6	23	50	19	27.5	8	53.2	19	54.2
Modifiers and noun	29	28.2	12	30.7	15	32.6	27	39.1	3	20	6	17.1
Compound NP	9	8.7	1	2.6	2	4.3	3	4.4	1	6.7	2	5.7
NP and adj. following												
NP and appos	2	1.9	3	7.7			1	1.5			1	2.9
NP and prep. phrase	8	7.7	1	2.6	3	6.5	6	8.7	1	6.7	4	11.4
NP and verbal phrase			2	5.1	1	2.2	5	7.2	1	6.7	1	2.9
NP and adj. clause	5	4.9			1	2.2	4	5.8			1	2.9
Verbal phrase			3	7.7	1	2.2	1	1.5				
Clause	4	3.9					3	4.3	1	6.7	1	2.9

* indicates total noun slots

Table 25 FREQUENCY AND PERCENT OF VARIATIONS OF SLOT 5

	Groups					
	6C		6E2		Prof.	
	78*		19		69	
Variations	Freq.	%	Freq.	%	Freq.	%
Single word	28	35.9	6	31.5	13	18.8
Modifiers and noun	33	42.3	6	31.6	24	34.8
Compound NP	1	1.3	2	10.5	3	4.4
NP and adj. following					2	2.9
NP and appos.	2	2.6	1	5.3	2	2.9
NP and prep. phrase	5	6.4	3	15.8	11	15.9
NP and verbal phrase	3	3.8	1	5.3	4	5.8
NP and adj. clause	1	1.3			4	5.8
Verbal phrase					2	2.9
Clause	5	6.4			4	5.8

* indicates total noun slots

Table 26 FREQUENCY AND PERCENT OF VARIATIONS OF COMPLEX SLOT 5

	Groups											
	2C		2E1		2E2		3C		3E1		3E2	
	42*		13		33		37		18		22	
Variations	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Modifiers and noun	31	73.8	6	46.1	20	61	26	70	10	55.6	13	59
Compound NP	5	11.9	3	23.1	3	9	1	3	2	11.1	1	5
NP and adj. following							1	3				
NP and appos.	1	2.4	1	7.7			1	3			1	5
NP and prep. phrase	2	4.7			3	9	6	16	1	5.6		
NP and verbal phrase	1	2.4	1	7.7	3	9	2	5			2	9
NP and adj. clause	1	2.4	1	7.7	2	6			2	11.1	2	9
Verbal phrase	1	2.4	1	7.7					1	5.5		
Clause					2	6			2	11.1	3	13

* indicates total complex slots

Table 26 FREQUENCY AND PERCENT OF VARIATIONS OF COMPLEX SLOT 5

	Groups											
	4C		4E1		4E2		5C		5E1		5E2	
	57*		22		23		50		7		16	
Variations	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Modifiers and noun	29	50.8	12	54.5	15	65.1	27	54	3	43	6	37.5
Compound NP	9	16	1	4	2	9	3	6	1	14.2	2	12.5
NP and adj. following												
NP and appos.	2	3.5	3	14			1	2			1	6.2
NP and prep. phrase	8	14	1	4.5	3	13	6	12	1	14.2	4	25
NP and verbal phrase			2	9	1	4.3	5	10	1	14.3	1	6.2
NP and adj. clause	5	8.7			1	4.3	4	8			1	6.3
Verbal phrase			3	14	1	4.3	1	2				
Clause	4	7					3	6	1	14.3	1	6.3

* indicates total complex slots

Table 26 FREQUENCY AND PERCENT OF VARIATIONS OF COMPLEX SLOT 5

	Groups					
	6C		6E2		Prof.	
	50*		13		56	
Variations	Freq.	%	Freq.	%	Freq.	%
Modifiers and noun	33	66	6	46.2	24	42.9
Compound NP	1	2	2	15.4	3	5.4
NP and adj. following					2	3.6
NP and appos.	2	4	1	7.7	2	3.6
NP and prep. phrase	5	10	3	23	11	19.6
NP and verbal phrase	3	6	1	7.7	4	7.1
NP and adj. clause	1	2			4	7.1
Verbal phrase					2	3.6
Clause	5	10			4	7.1

* indicates total complex slots

Table 27 FREQUENCY AND PERCENT OF VARIATIONS OF NOUN SLOTS 1, 4 & 5

	Groups											
	2C		2E1		2E2		3C		3E1		3E2	
	860*		632		889		941		561		542	
Variations	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Single word	476	55.3	327	51.7	471	53	505	53.6	302	53.8	303	55.9
Modifiers and noun	277	32.2	211	33.4	273	30.7	295	31.4	156	27.8	126	23.2
Compound NP	25	2.9	24	3.8	26	2.9	24	2.6	23	4.1	17	3.1
NP and adj. following	3	.4	1	.2	2	.2	2	.2				
NP and Appos.	2	.2	5	.8	5	.6	3	.3	3	.5	6	1.1
NP and prep. phrase	17	2	12	1.9	18	2	24	2.6	14	2.5	18	3.3
NP and verbal phrase	5	.6	13	2.1	22	2.5	20	2.1	14	2.5	21	3.9
NP and adj. clause	9	1	18	2.8	17	1.9	18	1.9	13	2.3	20	3.7
Verbal phrase	16	1.9	6	.9	14	1.6	17	1.8	6	1.1	8	1.5
Clause	30	3.5	15	2.4	41	4.6	33	3.5	30	5.4	23	4.3

* indicates total noun slots

Table 27 FREQUENCY AND PERCENT OF VARIATIONS OF NOUN SLOTS 1, 4 & 5

	Groups											
	4C		4E1		4E2		5C		5E1		5E2	
	956*		484		476		933		177		387	
Variations	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Single word	540	56.5	275	56.8	257	54	416	44.6	102	57.6	276	71.3
Modifiers and noun	218	22.7	113	23.3	118	24.9	300	32.2	46	25.9	28	7.2
Compound NP	34	3.6	13	2.7	15	3.2	28	3	5	2.8	11	2.8
NP and adj. following			1	.2								
NP and appos.	14	1.5	8	1.6	19	3.9	14	1.5	1	.6	3	.8
NP and prep. phrase	42	4.4	13	2.7	11	2.3	42	4.5	3	1.7	18	4.7
NP and verbal phrase	28	2.9	16	3.3	17	3.6	27	2.9	4	2.3	10	2.6
NP and adj. clause	18	1.9	5	1	7	1.5	34	3.7	3	1.7	10	2.6
Verbal phrase	12	1.3	10	2	6	1.2	18	1.9	4	2.3	10	2.6
Clause	50	5.2	30	6.4	26	5.4	54	5.7	9	5.1	21	5.4

* indicates total noun slots

Table 27

FREQUENCY AND PERCENT OF VERIATIONS OF NOUN SLOTS 1, 4 & 5

	Groups					
	6C		6E2		Prof.	
	1010*		158		1222	
Variations	Freq.	%	Freq.	%	Freq.	%
Single word	566	56	108	68.4	541	44.3
Modifiers and noun	267	26.4	30	19	334	27.3
Compound NP	37	3.7	4	2.6	35	2.9
NP and adj. following					9	.7
NP and appos.	14	1.4	3	1.8	16	1.3
NP and prep. phrase	26	2.6	5	3.2	104	8.5
NP and verbal phrase	21	2.1	3	1.8	35	2.9
NP and adj. clause	18	1.8	1	.6	40	3.3
Verbal phrase	7	.7			24	2
Clause	54	5.3	4	2.6	84	6.8

* indicates total noun slots

or more modifiers remains approximately the same; i.e., there is only a slight decline as children mature; and the frequency of use by Professional writers does not differ greatly from the average of most groups of children.

The syntactic structures which consistently appear with much greater frequency in Professional writing than in children's are the noun phrase with prepositional phrase or single word modifier following the noun. The noun phrase containing a prepositional phrase usually appears more often in the upper grades than in the lower. The noun slot with a clause as filler comprises 6.8 percent of all noun slots of the Professionals. This syntactically mature construction is used with somewhat greater frequency by the 5th and 6th grade children than by the 2nd and 3rd. The verbal phrase as filler of the noun slot is used more frequently by Professional writers than by children in most groups; however, both of the 5th grade Experimental groups use verbal phrases as fillers of noun slots more often than the Professionals. The use of the noun phrase including a modifying adjective clause or verbal phrase appears more often in the Professional group than in most groups of children. Both the compound noun phrase and the noun phrase with appositive are used with approximately the same frequency by Professional writers as by children, and the compound noun phrase shows no trend within the children's groups; the use of the appositive seems to increase as children mature so that the children in higher grades sometimes use more than the Professional writers.

In general, the simplest noun phrase consisting of a single-word noun or pronoun or a noun preceded by adjective, possessive, or determiner appears proportionately less often in the writing of older children than in that of the younger and even less often in Professional writing. On the other hand, the more complex varieties of the noun phrase, especially the noun phrases including prepositional phrases, verbal phrases, and clauses are used with increasing frequency as children mature and even more often by Professional writers.

II. USE OF ADVERBIALS (M's AND F's)

M1's, those adverbial structures which appear at the beginning of clauses, appear with greatest frequency in the second, third, and fourth grade Experimental groups. (See Table 28.) In fact, the 4E1 group uses more than twice as many M1's as do the Professional writers. Apparently this is a result of the frequency of expressions like "once upon a time," especially in initial sentences. Interestingly, the Experimentals usually use more M1's than the Controls, and in a few cases the difference is rather appreciable. The relatively infrequent use of M1's by Professional writers seems to be anticipated by the 6E2 group which uses fewer than any other Experimental group. The trend toward complex patterns holds true in the initial adverbial or M1 slot. (See Tables 29 and 30.) Professionals use single words for a somewhat smaller proportion of M1's than elementary school groups, and generally children in lower grades use more single-word M1's than do those in intermediate grades. In the use of complex adverbials preceding the subject, the Professionals appear to surpass elementary subjects in the use of prepositional phrases, in prepositional phrases followed by other structures, in verbals, and in clauses. In each of these incidences there is a trend toward increases with rising grade level. There is no clear contrast between Control and Experimental groups in the frequency of use of prepositional phrases or prepositional phrases plus other structures. Incidences of verbals appearing in the initial position in the sentence are infrequent with elementary subjects although the sudden rise for 6E2 is noteworthy. The frequency of clauses in this slot fluctuates but is high throughout the grade levels.

The use of the M4, a movable adverbial following the verb, is infrequent in

Table 28 FREQUENCY AND PERCENT OF THE MOST COMMON VARIETIES OF ADVERBIALS

	Groups											
	2C		2E1		2E2		3C		3E1		3E2	
	452*		365		464		487		265		277	
Adverbial	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
M1	100	22.1	136	37.3	182	39.2	157	32.2	115	43.4	95	34.3
M4	23	5.1	12	3.3	10	2.2	14	2.9	11	4.2	5	1.8
M5	55	12.2	29	7.9	46	9.9	53	10.9	37	14	29	10.5
F4	158	35	141	38.6	156	33.6	169	34.7	126	47.5	103	37.2
F5	21	4.7	14	3.8	30	6.5	29	6	14	5.3	19	6.9

* total sentences

Table 28 FREQUENCY AND PERCENT OF THE MOST COMMON VARIETIES OF ADVERBIALS

	Groups											
	4C		4E1		4E2		5C		5E1		5E2	
	468*		225		223		463		103		183	
Adverbial	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
M1	160	34.2	106	47.1	81	36.3	142	30.7	31	30.1	64	35
M4	20	4.3	5	2.2	13	5.8	27	5.8	11	10.7	18	9.8
M5	51	10.9	29	12.9	46	20.6	66	14.3	10	9.7	40	21.9
F4	162	34.6	118	52.4	107	48	210	45.4	30	29.1	96	52.5
F5	29	6.2	19	8.4	19	8.5	58	12.5	6	5.8	9	4.9

* total sentences

Table 28 FREQUENCY AND PERCENT OF THE MOST COMMON VARIETIES OF ADVERBIALS

	Groups					
	6C		6E2		Prof.	
	449*		84		500	
Adverbial	Freq.	%	Freq.	%	Freq.	%
M1	168	37.4	20	23.8	121	24.2
M4	51	11.4	6	7.1	109	21.8
M5	81	18	26	31	203	40.6
F4	225	50	44	52.4	327	65.4
F5	55	12.2	1	1.2	80	16

* total sentences

Table 29 FREQUENCY AND PERCENT OF VARIATIONS OF SLOT M-1

	Groups											
	2C		2E1		2E2		3C		3E1		3E2	
	100*		136		182		157		115		95	
Variations	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Single word	43	43	63	46.2	56	30.8	54	34.4	42	36.6	39	41
Noun-headed			3	2.2	3	1.6	2	1.3	1	.9	2	2.1
Adv. headed	27	27	30	22.1	58	31.9	43	27.4	40	34.8	31	32.6
Adj. headed												
Prep. phrase	7	7	5	3.7	14	7.7	14	8.9	12	10.4	7	7.4
Prep. phrase & *x	9	9	22	16.2	26	14.3	17	10.8	2	1.7	10	10.5
Adv. and prep. phrase					2	1.1	2	1.3	2	1.7		
Verbal phrase			2	1.5							1	1.1
Clause	15	15	11	8.1	23	12.6	25	15.9	16	13.9	5	5.3

*x indicates some complex structure modifying the prepositional phrase
* indicates total slots

Table 29 FREQUENCY AND PERCENT OF VARIATIONS OF SLOT M-1

	Groups											
	4C		4E1		4E2		5C		5E1		5E2	
	160*		106		81		147		31		64	
Variations	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Single word	56	35	28	26.4	26	32.1	22	15	9	29	18	28.1
Noun-headed	1	.6	3	2.8			2	1.4			1	1.6
Adv. headed	39	24.4	25	23.6	36	44.4	51	34.7	8	25.8	16	25
Adj. headed	1	.6										
Prep. phrase	13	8.1	18	17	5	6.2	23	15.6	7	22.6	10	15.6
Prep. phrase & *x	20	12.5	6	5.7	3	3.7	11	7.5	1	3.2	5	7.8
Adv. and prep phrase	6	3.8	5	4.7	2	2.5	4	2.7			4	6.2
Verbal phrase	1	.6	1	.9	1	1.2					1	1.6
Clause	23	14.4	20	18.9	8	9.9	34	23.1	6	19.4	9	14.1

*x indicates some complex structure modifying the prepositional phrase

* indicates total slots

Table 29 FREQUENCY AND PERCENT OF VARIATIONS OF SLOT M-1

	Groups					
	6C		6E2		Prof.	
	168*		20		121	
Variations	Freq.	%	Freq.	%	Freq.	%
Single word	46	27.4	6	30	22	18.1
Noun-headed	4	2.4			2	1.7
Adv. headed	48	28.6	9	45	10	8.3
Adj. headed						
Prep. phrase	13	7.7			30	24.8
Prep. phrase & *x	9	5.4			4	3.3
Adv. and prep. phrase	6	3.6			12	9.9
Verbal phrase	4	2.3	1	5	8	6.6
Clause	38	22.6	4	20	33	27.3

*x indicates some complex structure modifying the prepositional phrase
* indicates total slots

FREQUENCY AND PERCENT OF VARIATIONS OF COMPLEX SLOT M-1

Table 30

	Groups											
	2C		2E1		2E2		3C		3E1		3E2	
	57*		73		126		103		73		56	
Variations	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Noun-headed			3	4.1	3	2.3	2	1.9	1	1.4	2	3.5
Adv.-headed	26	45.6	30	41.1	58	46	43	41.8	40	54.8	31	55.4
Adj.-headed												
Prep. phrase	7	12.3	5	6.9	14	11.1	14	13.6	12	16.5	7	12.5
Prep. phrase & *x	9	15.8	22	30.1	26	20.7	17	16.5	2	2.7	10	17.9
Adv. and prep. phrase					2	1.6	2	1.9	2	2.7		
Verbal phrase			2	2.7							1	1.8
Clause	15	26.3	11	15.1	23	18.3	25	24.3				

*x indicates some complex structure modifying the prep. phrase
* indicates total slots

FREQUENCY AND PERCENT OF VARIATIONS OF COMPLEX SLOT M-1

Table 30	Groups											
	4C		4E1		4E2		5C		5E1		5E2	
	104 *		78		55		125		22		46	
Variations	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Noun-headed	1	.9	3	3.8			2	1.6			1	2.2
Adv.-headed	39	37.6	25	32.1	36	65.4	51	40.8	8	36.4	16	34.8
Adj.-headed	1	.9										
Prep. phrase	13	12.5	18	23.1	5	9.1	23	18.4	7	31.8	10	21.7
Prep. phrase & *x	20	19.2	6	7.7	3	5.5	11	8.8	1	4.5	5	10.8
Adv. and prep. phrase	6	5.8	5	6.4	2	3.7	4	3.2			4	8.7
Verbal phrase	1	.9	1	1.3	1	1.8					1	2.2
Clause	23	22.2	20	25.6	8	14.5	34	27.2	6	27.3	9	19.6

*x indicates some complex structure modifying the prep. phrase
* indicates total slots

FREQUENCY AND PERCENT OF VARIATIONS OF COMPLEX SLOT M-1

Table 30

	Groups					
	6C		6E2		Prof.	
	122*		14		99	
Variations	Freq.	%	Freq.	%	Freq.	%
Noun-headed	4	3.3			2	2
Adv.-headed	48	39.3	9	64.3	10	10.1
Adj.-headed						
Prep. phrase	13	10.7			30	30.3
Prep. phrase & *x	9	7.4			4	4
Adv. and prep. phrase	6	4.9			12	12.1
Verbal phrase	4	3.3	1	7.1	8	8.1
Clause	38	31.1	4	28.6	33	33.4

*x indicates some complex structure modifying the prep. phrase
* indicates total slots

all elementary groups. There seems to be no definite trend from second to sixth grade. However, the fifth and sixth graders consistently use more M4's than do any of the lower grades. (Table 28) There seems to be no meaningful contrast between Experimental and Control groups. However, the Professionals use a far greater number of M4's than any group of students. In fact, the amount of M4's used by Professionals, as compared with Experimental and Control groups, ranges from more than twice as many to more than ten times as many.

As with the M4's, the M5's appear considerably more often in the sentences of Professional writers than in sentences created by the children's groups, specifically from one and one-third times to five times as often. (See Table 28.) The movable following an object or complement appears with greater frequency than the movable in any other position. In fact, in the 500 sentences of the Professionals there are 203 M5's. At most grade levels, the M5 is used more frequently by Experimental writers than by Control writers. Generally, there is a rather steady increase from one grade to another in the use of the M5.

The F4's and F5's, like the M4's and M5's appear with greater frequency in the writing of the Professionals than in that of the second to sixth grade children. (Table 28) There is generally a slight increase among the older children in the use of F4's over those in the lower grades. The difference between Control and Experimental groups is most noticeable at the third and fourth grade levels. In the use of complex structures the Professional writers use slightly fewer noun-headed phrases and, conversely, slightly more prepositional phrases followed by other constructions. (Tables 31 and 32) Rather surprisingly the Professional writers analyzed in this study do not always surpass the elementary groups in the use of verbal phrases and clauses.

The F5 appears less often than those other M and F slots which have been discussed. (Table 28) It does, however, appear more frequently than the M's and

FREQUENCY AND PERCENT OF VARIATIONS OF SLOT F-4

Table 31

	Groups											
	2C		2E1		2E2		3C		3E1		3E2	
	158*		141		156		169		126		103	
Variations	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Single word	43	27.2	43	30.5	46	29.5	49	29	36	28.5	24	23.4
Noun-headed	2	1.3			6	3.9	12	7.1	1	.8	2	1.9
Adv.-headed	8	5.1	12	8.5	6	3.9	5	2.9	8	6.3	9	8.7
Adj.-headed	1	.6										
Prep. phrase	95	60.1	71	50.4	69	44.2	78	46.1	67	53.2	53	51.5
Prep. phrase & *x			4	2.8	10	6.4	3	1.8	2	1.6	6	5.8
Adv. and prep. phrase	4	2.5	2	1.4	13	8.3	16	9.5	6	4.8	6	5.8
Verbal phrase	5	3.2	7	5	3	1.9	3	1.8	4	3.2	1	1
Clause			2	1.4	3	1.9	3	1.8	2	1.6	2	1.9

*x indicates some complex structure modifying the prep. phrase
* indicates total slots

FREQUENCY AND PERCENT OF VARIATIONS OF SLOT F-4

Table 31

	Groups											
	4C		4E1		4E2		5C		5E1		5E2	
	162*		118		107		210		30		96	
Variations	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Single word	30	18.5	38	32.2	22	20.6	19	9	6	20	25	26
Noun-headed	5	3.1	2	1.7	1	.9	4	1.9	3	10	2	2.1
Adv.-headed	7	4.3	8	6.8	6	5.6	11	5.2			7	7.3
Adj.-headed									3	10		
Prep. phrase	98	60.5	44	37.3	66	61.7	137	65.2	16	53.3	51	53.1
Prep. phrase & *x	5	3.1	9	7.6	2	1.9	6	2.9			1	1
Adv. and prep. phrase	14	8.6	11	9.3	5	4.7	16	7.6	2	6.7	8	8.3
Verbal phrase	3	1.9	5	4.3	3	2.8	10	4.8			1	1
Clause			1	.8	2	1.9	7	3.3			1	1

*x indicates some complex structure modifying the prep. phrase
* indicates total slots

FREQUENCY AND PERCENT OF VARIATIONS OF SLOT F-1

Table 31

	Groups					
	6C		6E2		Prof.	
	225*		44		327	
Variations	Freq.	%	Freq.	%	Freq.	%
Single word	57	25.3	11	25	47	14.4
Noun-headed	3	1.3	1	2.3	11	3.4
Adv.-headed	1	.4	3	6.8	9	2.8
Adj.-headed					1	.3
Prep. phrase	119	52.9	24	54.5	174	53.2
Prep. phrase & *x	8				20	6.1
Adv. and prep. phrase	23	10.2	4	9.1	51	15.6
Verbal phrase	8	3.5			6	1.8
Clause	6	2.7	1	2.3	8	2.4

*x indicates some complex structure modifying the prep. phrase
* indicates total slots

FREQUENCY AND PERCENT OF VARIATIONS OF COMPLEX SLOT F-4

Table 32

	Groups											
	2C		2E1		2E2		3C		3E1		3E2	
	115*		98		110		120		90		79	
Variations	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Noun-headed	2	1.7			6	5.4	12	10	1	1.1	2	2.5
Adv.-headed	8	6.8	12	12.3	6	5.4	5	4.2	8	8.9	9	11.6
Adj.-headed	1	.9										
Prep. phrase	95	82.7	71	72.5	69	62.8	78	65	67	74.5	53	67
Prep. phrase & *x			4	4.1	10	9.1	3	2.5	2	2.2	6	7.6
Adv. and prep. phrase	4	3.5	2	2	13	11.9	16	13.3	6	6.6	6	7.6
Verbal phrase	5	4.4	7	7.1	3	2.7	3	2.5	4	4.5	1	1.2
Clause			2	2	3	2.7	3	2.5	2	2.2	2	2.5

*x indicates some complex structure modifying the prep. phrase
* indicates total slots

FREQUENCY AND PERCENT OF VARIATIONS OF COMPLEX SLOT F-4

Table 32

	Groups											
	4C		4E1		4E2		5C		5E1		5E2	
	132*		80		85		191		24		71	
Variations	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Noun-headed	5	3.8	2	2.5	1	1.2	4	2.1	3	12.5	2	2.8
Adv.-headed	7	5.3	8	10	6	7	11	5.8			7	9.8
Adj.-headed									3	12.5		
Prep. phrase	98	74.2	44	55	66	77.6	137	71.8	16	66.7	51	71.9
Prep. phrase & *x	5	3.8	9	11.3	2	2.4	6	3.1			1	1.4
Adv. and prep. phrase	14	10.6	11	13.8	5	5.9	16	8.4	2	8.3	8	11.3
Verbal phrase	3	2.3	5	6.2	3	3.5	10	5.2			1	1.4
Clause			1	1.2	2	2.4	7	3.6			1	1.4

*x indicates some complex structure modifying the prep. phrase
* indicates total slots

FREQUENCY AND PERCENT OF VARIATIONS OF COMPLEX SLOT F-4

Table 32

	Groups					
	6C		6E2		Prof.	
	168*		33		280	
Variations	Freq.	%	Freq.	%	Freq.	%
Noun-headed	3	1.7	1	3	11	3.9
Adv.-headed	1	.6	3	10	9	3.2
Adj.-headed					1	.4
Prep. phrase	119	70.8	24	72	174	62.2
Prep. phrase & *x	8	4.8			20	7.1
Adv. and prep. phrase	23	13.7	4	12	51	18.2
Verbal phrase	8	4.8			6	2.1
Clause	6	3.6	1	3	8	2.9

*x indicates some complex structure modifying the prep. phrase
* indicates total slots

F's in medial positions. As with the other terminal adverbials (M4, M5, F4) the F5 appears considerably more often in the writing of the Professionals than in the children's writing. There is no consistent difference between the Experimental and Control groups, nor is there any regular increase according to grade level.

In conclusion it should be noted that the M5 appears with far greater frequency than the F5. However, the F4 appears more often than the M4; thus the slots following the verb are more often fixed, but those which follow the object or complement are more often movable. Medial adverbials, both fixed and movable--M2, M3, F2, F3--are all relatively infrequent. Initial adverbials are virtually always movable: the M1 is quite common; the F1 almost never appears.

Totals of Major Adverbial Slots. (Table 33) In the same way that frequencies of major noun slots were combined to provide greater totals, which, hopefully, would indicate trends not fully revealed by an analysis of individual noun slots, the five most common adverbial slots were also combined. In this manner, frequencies of the various types of adverbial structures--word, prepositional phrase, clause, etc., were obtained, regardless of position.

Several types of structure increased in relative frequency of use with older children and with the Professional writers while others declined or remained relatively constant. The most easily observable increase was in the use of those prepositional phrases which contained other phrases or clauses. For the children, this type of structure varied from .9 to 9.3 percent of all adverbials, with the lowest frequency coming in a second grade group, and the highest frequencies in fifth and sixth grades. The Professionals surpassed all groups by a substantial margin in the use of prepositional phrases containing other complex structures nested within them. Another structure which was used somewhat more often by the

FREQUENCY AND PERCENT VARIATIONS OF SLOTS M-1, 4, 5, F-4, 5

Table 33	Groups											
	2C		2E1		2E2		3C		3E1		3E2	
	357*		342		424		422		303		251	
Variations	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Single word	108	30.2	118	34.5	131	30.9	121	28.9	87	28.7	75	29.9
Noun-headed	6	1.7	3	.9	11	2.6	17	4	4	1.3	5	2
Adv.-headed	40	11.2	52	15.2	75	17.7	59	14	52	17.2	47	18.7
Adj.-headed	1	.3										
Prep. phrase	139	38.9	90	26.3	88	20.8	124	29.4	97	32	71	28.2
Prep. phrase & *x	9	2.5	28	8.2	36	8.5	21	4.9	4	1.3	16	6.4
Adv. and prep. phrase	6	1.7	3	.9	28	6.6	21	4.9	10	3.3	13	5.2
Verbal phrase	12	3.4	22	6.4	6	1.4	9	2.1	8	2.7	6	2.4
Clause	36	10.1	26	7.6	49	11.5	40	11.8	41	13.5	18	7.2

*x indicates some complex structure modifying the prepositional phrase
* Indicates total slots

FREQUENCY AND PERCENT VARIATIONS OF SLOTS M-1, 4, 5, F-4, 5

Table 33

	Groups											
	4C		4E1		4E2		5C		5E1		5E2	
	422*		277		266		508		88		227	
Variations	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Single word	110	26.1	73	26.4	61	22.9	57	11.2	20	22.7	50	22.1
Noun-headed	7	1.7	7	2.5	2	.7	10	2	4	4.7	6	2.7
Adv.-headed	58	13.7	34	12.3	45	16.9	74	14.6	9	10.2	26	11.1
Adj.-headed	1	.2	1	.4			1	.2	3	3.4		
Prep. phrase	138	32.7	83	29.9	92	34.6	227	44.7	31	35.2	71	31.3
Prep. phrase & *x	25	5.9	15	5.4	5	1.9	18	3.5	1	1.1	6	2.7
Adv. and prep. phrase	26	6.2	17	6.1	14	5.3	25	4.9	3	3.4	21	9.3
Verbal phrase	10	2.4	11	4	11	4.2	25	4.9	7	7.9	15	6.7
Clause	47	11.1	36	13	36	13.5	71	14	10	11.4	32	14.1

*x indicates some complex structures modifying the prep. phrase
* indicates total slots

FREQUENCY AND PERCENT VARIATIONS OF SLOTS M-1, 4, 5, F-4, 5

Table 33

	Groups					
	6C		6E2		Prof.	
	580 *		97		840	
Variations	Freq.	%	Freq.	%	Freq.	%
Single word	142	24.5	21	21.5	152	18.1
Noun-headed	10	1.7	1	1	22	2.6
Adv.-headed	59	10.1	16	16.5	47	5.6
Adj.-headed	6	1	2	2.1	5	.6
Prep. phrase	200	34.5	32	33	319	38
Prep. phrase & *x	19	3.3			32	3.7
Adv. and prep. phrase	36	6.2	8	8.3	115	13.7
Verbal phrase	31	5.4	3	3.1	57	6.8
Clause	77	13.3	14	14.5	91	10.9

*x indicates some complex structure modifying the prep. phrase
* indicates total slots

Professionals than by the children was the verbal phrase. Although one group used this structure more than the Professionals, most used it somewhat less. There is a steady increase from grade to grade in the use of adverbial clauses; however, surprisingly, the Professionals use them less often than most of the groups of children.

The adverbial structures which show no meaningful increases or decreases from one group to another are the simple prepositional phrase, adverb plus prepositional phrase, adjective-headed, and adverb-headed structures. Two types of adverbials which were used less often by Professionals than by the children were the noun-headed adverbial construction, like "one day," and the single word adverb. The noun-headed structure was used from two to three times as often by children as by the Professional writers. There is a rather steady decline in the use of single word adverbials as children mature. The decrease in the use of the single word adverbial continues in the writing of the Professionals: for the second grade children more than 30 percent of all adverbials are single words while for the Professionals the corresponding figure is 18 percent.

III. FREQUENCY OF SYMBOLS BY SLOTS

Historically, single-word counts comparing "parts-of-speech" ratios have held a prominence in language study; only recently these studies have been supplanted by syntactic studies of larger patterns. For example, the Carlton study in 1950 (16) painstakingly analyzed adjective functions and relative frequency of adjective use by sex. Ten years prior, Boder's study of adjective-verb quotient had indicated "subject matter of the text" (7:328) to be the determining variable in adjective frequency. Some studies, summarized by McCarthy (50:559), show pronoun frequency increases as a "language sophistication" marker, though this index appears to be inversely related to other indices of writing maturity in the recent study of K. Hunt. (See 35: Table 56, pp. 148 f.) A complete summary of symbol frequencies at this point would be unlikely to yield consistent conclusions.

One way to refine single-constituent analysis may be to examine these items not in relation to total running words but, rather, the ratio of item-count to total items by slots. Such an analysis can be attempted experimentally to see whether it may yield differential effects where such effects have formerly not been apparent or have been inconsistent. The data, then, may be useful heuristically, the try-out of a new denominator perhaps offering a more sensitive basis of comparison. The data may also be used to supplement slot-pattern evidence of the preceding chapter.

An examination of individual constituents of each type of slot was made as a part of the present study. Generally, however, the results obtained provided little additional information about the syntax of children beyond what was found by the analysis of patterns within slots.

Briefly, the findings are as follows:

1) Within the subject slot, there is a decline with increasing age and in Professional writers in the proportion of determiners, nouns, attributive nouns, possessive nouns, possessive pronouns, and past participial phrases in proportion to total constituents of the subject slot. There is an increasing proportional use of adjectives, single-word past participles, prepositional phrases, present participial phrases, and adjective clauses.

2) In both object and complement slots, the proportion of most constituents is quite stable from one group to another. The only constituents which show an increasing use in upper grade levels and in Professional writing are the prepositional phrase and the present participial phrase. The most common constituents—nouns, determiners, and adjectives--do not vary extensively from one group to

another.

3) Within adverbial slots only a few very slight differences could be seen between the various groups. In the older children and in the Professionals, there was a slight increase in the use of single-word adverbs, and a small decrease in the use of determiners, adjectives, and nouns. The proportion of most other constituents of adverbial slots remained surprisingly stable.

IV. USE OF MULTI-LEVEL SENTENCES

The use of an immediate constituent system of analysis places considerable emphasis on sentence "levels," the amount of syntactic complexity revealed by the number of times structures have been "nested" within one another. Table 34 reveals just how indicative of linguistic maturity the use of multi-level sentences is. The ratio of complex slots to total sentences results in an index ranging from 1.60 at 2C to 4.22 for Professional writers. In other words, Professional writers use nearly three times as many complex slots per sentence as do second grade Control pupils. The increase throughout the grade levels used in the sample is fairly consistent, but fails to go much more than half way toward the Professional "criterion." There is a consistent superiority of the Experimental groups over the Control groups at each grade except the sixth. The positive difference in favor of Experimental subjects ranges from .02 (5C-5E1) per sentence to .81 per sentence (5C-5E2). One might conclude that the combined factors of 1) advance in grade level, and 2) instruction of the type described for the Experimental treatment appear to increase the number of complex slots per sentence—a trend toward professional practice. At each sentence level, the Professional writers use more complex slots than the children.

Table 35 reveals some different kinds of information about sentence levels,

TOTAL SLOTS AT EACH LEVEL PER SENTENCE

Table 34

	Groups											
	2C		2E1		2E2		3C		3E1		3E2	
	452*		365		464		487		265		277	
	Slot Freq.	Slots/ Sent.	Slot Freq.	Slots/ Sent.	Slot Freq.	Slots/ Sent.	Slot Freq.	Slots/ Sent.	Slot Freq.	Slots/ Sent.	Slot Freq.	Slots/ Sent.
Total Complex Slots	724	1.60	642	1.79	909	1.96	933	1.92	616	2.32	553	1.99
Slots at Level 2	581	1.28	462	1.26	640	1.38	673	1.38	426	1.61	379	1.37
Slots at Level 3	125	.27	144	.39	201	.43	188	.38	131	.49	136	.49
Slots at Level 4	17	.037	32	.087	52	.11	63	.13	48	.18	32	.115
Slots at Level 5	1	.002	4	.01	14	.03	9	.018	8	.03	6	.02
Slots at Level 6					2	.0043			3	.01		
Slots at Level 7												
Slots at Level 8												
Slots at Level 9 or Higher												

* indicates total number of sentences

TOTAL SLOTS AT EACH LEVEL PER SENTENCE

Table 34

	Groups											
	4C		4E1		4E2		5C		5E1		5E2	
	468*		225		223		463		103		183	
	Slot Freq.	Slots/ Sent.	Slot Freq.	Slots/ Sent.	Slot Freq.	Slots/ Sent.	Slot Freq.	Slots/ Sent.	Slot Freq.	Slots/ Sent.	Slot Freq.	Slots/ Sent.
Total Complex Slots	1007	2.15	548	2.43	530	2.33	792	1.71	178	1.73	471	2.52
Slots at Level 2	685	1.4	353	1.56	353	1.58	567	1.23	125	1.24	285	1.50
Slots at Level 3	228	.49	146	.64	139	.62	160	.35	40	.39	127	.69
Slots at Level 4	60	.13	41	.18	31	.139	46	.10	9	.09	41	.22
Slots at Level 5	25	.05	8	.035	7	.03	17	.037	4	.039	15	.08
Slots at Level 6	9	.02					2	.0043			3	.016
Slots at Level 7												
Slots at Level 8												
Slots at Level 9 or Higher												

* indicates total number of sentences

TOTAL SLOTS AT EACH LEVEL PER SENTENCE

Table 34

	Groups					
	6C		6E2		Prof.	
	449*		84		500	
	Slot Freq.	Slots/ Sent.	Slot Freq.	Slots/ Sent.	Slot Freq.	Slots/ Sent.
Total Complex Slots	1043	2.32	165	1.96	2110	4.22
Slots at Level 2	603	1.34	110	1.3	962	1.92
Slots at Level 3	301	.67	43	.51	596	1.19
Slots at Level 4	97	.22	12	.12	282	.56
Slots at Level 5	34	.075			129	.26
Slots at Level 6	6	.013			69	.14
Slots at Level 7	2	.004			29	.06
Slots at Level 8					15	.03
Slots at Level 9 or Higher					28	.06

* indicates total number of sentences

FREQUENCY AND PERCENT OF SLOTS AT EACH LEVEL

Table 35

	Groups											
	2C		2E1		2E2		3C		3E1		3E2	
Total Complex Slots	724		642		909		933		616		553	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Complex Slots at Level 2	581	80.2	462	71.9	640	70.4	673	72.1	426	69.1	379	68.5
Complex Slots at Level 3	125	17.3	144	22.4	201	22.1	188	20.1	131	21.3	136	24.6
Complex Slots at Level 4	19	2.3	32	4.9	52	5.7	63	6.7	48	7.8	32	5.78
Complex Slots at Level 5	1	.14	4	.6	14	1.5	9	.96	8	1.3	6	1.1
Complex Slots at Level 6					2	.22			3	.49		
Complex Slots at Level 7												
Complex Slots at Level 8												
Complex Slots at Level 9 or Higher												

FREQUENCY AND PERCENT OF SLOTS AT EACH LEVEL

Table 35

	Groups											
	4C		4E1		4E2		5C		5E1		5E2	
Total Complex Slots	1007		548		530		792		178		471	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Complex Slots at Level 2	685	68	353	64.4	353	66.6	567	71.6	125	70.2	285	60.5
Complex Slots at Level 3	228	22.6	146	26.6	139	26.2	160	20.2	40	22.5	127	26.9
Complex Slots at Level 4	60	5.9	41	7.5	31	5.8	46	5.8	9	5.06	41	8.7
Complex Slots at Level 5	25	2.5	8	1.5	7	1.3	17	2.15	4	2.25	15	3.18
Complex Slots at Level 6	9	.89					2	.25			3	.64
Complex Slots at Level 7												
Complex Slots at Level 8												
Complex Slots at Level 9 or Higher												

FREQUENCY AND PERCENT OF SLOTS AT EACH LEVEL

Table 35

	Groups					
	6C		6E2		Prof.	
Total Complex Slots	1043		165		2110	
	Freq.	%	Freq.	%	Freq.	%
Complex Slots at Level 2	603	57.8	110	66.6	962	45.6
Complex Slots at Level 3	301	28.8	43	26.1	596	28.2
Complex Slots at Level 4	97	9.3	12	7.27	282	13.4
Complex Slots at Level 5	34	3.26			129	6.1
Complex Slots at Level 6	6	.6			69	3.3
Complex Slots at Level 7	2	.2			29	1.4
Complex Slots at Level 8					15	.6
Complex Slots at Level 9 or Higher					28	1.4

although it reinforces what appears on Table 34. Here are, for each group, the percentages of slots at each level. If we can assume that more complex structures are indicated by repeated "nesting" of structures within one another, then complexity of syntax will be shown by a large percentage of slots at higher levels.

Interestingly, but predictably, Professional writers far surpass elementary pupils in the use of multi-level complex slots. For example, 1.4 percent of Professional writers' slots are to be found on the ninth level of embedding or beyond, whereas, no elementary pupils' sentences went beyond the seventh level of complexity.

Both charts reveal the strong tendency of Professional writers to create sentences with multi-level complex slots, far surpassing elementary pupils. For example, 13.4 percent of the slots of Professional writers are to be found at the 4th level, an average of .56 per sentence. The highest figure from the pupil sample is 8.7 percent of slots which is .22 per sentence for the 5E2 group. Even more strikingly, Professional writers use the fifth level from two to ten times as often as do the children.

Does the Experimental treatment appear to result in increased higher level constructions for Experimental subjects? Beginning with the third level, evidence strongly indicates that such an increase in complexity does occur. Pupils of the Control groups, for example, use proportionately fewer complex slots above level 2 than Experimental pupils do in grades 2, 3, and 4. The grade 5 data show a decrease in slots at level three to total slot ratio, this being inevitable when it is understood that larger proportions of complex slots go beyond the third level. At the fourth level, to use another example, we find that Professionals use approximately .5 complex slots per sentence; elementary pupils use less than half as many, the closest being .22 per sentence of 5E2 and 6C. (Table 34)

The rather conclusive evidence of this table is that 1) upper grade pupils use complex slots at higher levels more frequently than lower grade pupils, the progression being somewhat gradual, 2) Experimental pupils appear rather consistently to surpass Controls in the use of complex slots at higher levels, and 3) the Professional writers used higher levels to a much greater extent than did any group of children.

CHAPTER V

A CASE STUDY OF SELECTED MATCHED PAIRS

By means of random selection one Experimental and one Control male and one Experimental and one Control female at grades two, four, and six were matched from those students with IQ's above 115 to represent a high IQ group. In a similar manner such pairs were also matched from those students with IQ's below 115 to represent a middle IQ group. Because of the extremely small number of children with IQ's below 90 there were no pairs matched for a low group. Thus, at each of the three grades there are four pairs: high male and high female, middle male and middle female; each pair consisting of one member from the Experimental and the other from the Control. IQ's were matched as closely as possible, (in all cases within ten points and usually much closer) and reading and language scores were matched within .4 of one year. The actual scores of the matched pairs appear in Table 36.

I. TOTAL WORDS AND CLAUSE LENGTH

The total number of words written by a student provides some measure of his writing ability, especially at the lower grade level. When the total words for the four Control children and the four Experimental children at each grade are totaled, the following results are obtained:

Table 36

Comparison of Total words of Experimental and Control Matched Pairs

2 Cont.	156	4 Cont.	579	6 Cont.	837
2 Exp.	356	4 Exp.	497	6 Exp.	808

Table 37

SCORES OF MATCHED PAIRS

	Grade Two			Grade Four			Grade Six		
	Total IQ	Total Reading	Total Language	Total IQ	Total Reading	Total Language	Total IQ	Total Reading	Total Language
High Male Experimental	131	3.6	3.3	129	6.1	5.4	120	8.0	6.7
High Male Control	124	3.5	3.2	130	6.2	5.6	119	7.8	6.4
High Female Experimental	139	3.7	3.6	127	6.4	6.0	120	7.5	7.0
High Female Control	137	3.4	3.7	128	6.1	6.1	117	7.2	7.0
Middle Male Experimental	92	2.7	2.6	109	5.0	5.1	110	6.5	6.5
Middle Male Control	96	2.6	2.3	110	4.9	4.8	110	6.8	6.3
Middle Female Experimental	110	2.4	2.9	108	5.1	4.4	105	6.6	6.5
Middle Female Control	112	2.3	2.8	108	4.8	4.5	100	7.0	6.3

The Experimental children, as may be noted in the table above, write more than twice as many words as the Control children at the second grade level. The Control and Experimental groups at grades four and six are much closer in the total number of words, the Control groups slightly surpassing the Experimental. Likewise, similar results are obtained when all high and middle children's total words are combined.

Table 38

Comparison of Total Words of High and Middle IQ Groups With Experimental and Control Combined

2H	346	4H	532	6H	868
2M	166	4M	544	6M	777

The total number of words written by the high and the middle groups shows a distribution similar to that of the Experimental-Control comparison. The high group at grade two writes more than twice as much as the middle group, but at grades four and six the two are considerably closer together.

II. TOTAL SENTENCES AND TOTAL CLAUSES

The following figures show the total number of sentences and clauses written by Control and Experimental children at each grade.

Table 39

Total Sentences Used by Experimental and Control Groups

2 Cont.	21	4 Cont.	72	6 Cont.	105
2 Exp.	36	4 Exp.	58	6 Exp.	98

Table 40

Total Clauses Used by Experimental and Control Groups

2 Cont.	26	4 Cont.	104	6 Cont.	131
2 Exp.	51	4 Exp.	70	6 Exp.	136

At grade two the Experimental again far surpass the Control, however, at grade four the Control write more clauses and sentences than do the Experimental. At grade six the two are approximately equal, the Control writing more sentences, but the Experimental writing more total clauses.

III. LEVELS OF COMPLEXITY IN SENTENCES

Table 41, below, indicates the number of sentences which reach various levels of complexity. As was noted in the discussion of sentence levels, in Chapter 4, Professional writers have a higher percentage of sentences going beyond the levels of complexity attained by students; thus, sentence levels indicating syntactic complexity are considered an indication of linguistic maturity.

The following table indicates the amount of complexity in sentence levels for the Control and Experimental writers at each grade. Percentages are also given which make the comparison more meaningful. In addition, the last two columns which give the percentage of the communication units going beyond level 1 and going beyond level 2 show a considerable difference, both between the various grades, and between the Experimental and the Control groups. In each case, the Experimental children surpass the Control in complexity of clause structure, and generally the higher grades show greater complexity than the lower grades. Note, for example, that the second grade Experimental has more than twice as many sentences going above level 2 as the Control. Similarly, at grade six the Experimental write one and one-half times as many sentences going beyond level 2 as do the Control.

Table 41

Levels of Sentence Complexity of Experimental and Control Groups

	Sentences	Level 1	%	Level 2	%	Level 3	%	Level 4	%	Level 5	%	% Above L. 1	% Above L. 2
2E	36	10	28	10	28	13	35	2	6	1	3	72	44
2C	21	10	47	7	33	2	10	2	10	0	0	53	20
4E	58	8	14	26	45	21	36	3	5	0	0	86	41
4C	72	24	33	22	31	20	28	4	5	2	3	67	36
6E	98	17	17	37	38	33	34	10	10	1	1	83	45
6C	105	25	24	48	45	27	26	4	4	1	1	76	31

IV. TOTAL M's AND F's

Table 42, below, indicates the frequency of use of adverbial structures, regardless of position and syntactic type in each composition.

Table 42

Total M's and F's of Experimental and Control Groups

2 Cont.	21	4 Cont.	59	6 Cont.	73
2 Exp.	42	4 Exp.	71	6 Exp.	111

As was noted previously, the use of M's and F's increases as the child matures and can be considered one characteristic of linguistic maturity. The above chart, for example, shows that the Experimental children at the second grade level use twice as many M's and F's as the Control, and M's and F's are also used with greater frequency by the Experimental than by the Control at grades four and six.

One variety of M or F worth noting is the prepositional phrase. The total number of prepositional phrases for the Control and Experimental children at each grade is as follows.

Table 43

Total Prepositional Phrases Used by Experimental and Control Groups

2 Cont.	6	4 Cont.	41	6 Cont.	48
2 Exp.	14	4 Exp.	38	6 Exp.	62

The Experimental children at grade two use considerably more prepositional phrases than do the Control. At the fourth grade level the Control use slightly more, but at the sixth grade level the Experimental again write somewhat more prepositional phrases than the Control group.

V. SENTENCE PATTERNS

As was noted previously, the proportion of each sentence pattern is relatively similar for all groups. Table 44, below, shows the use of several sentence patterns by the 12 matched pairs. When the four Control and the four Experimental at each grade level are combined the following results are obtained.

Table 44

Use of Sentence Patterns by Control and Experimental Groups

	1 2	1 2 4	1 2B 5/5A	Other	Total
2 Cont.	7	5	7	2	21
2 Exp.	7	13	4	12	36
4 Cont.	16	29	11	16	72
4 Exp.	23	17	5	13	58
6 Cont.	16	48	23	17	104
6 Exp.	39	32	13	14	98

Perhaps the most significant thing to be found in the table is that some groups rely heavily on a single pattern whereas others seem to have more variety. Note especially the sixth grade Control group has almost half of its sentences consisting of 1 2 4 patterns. The Experimental group, on the other hand, has no such concentration in any one pattern.

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APPENDIX A

Schools Participating in the Study

1963-1964
1964-1965
1965-1966

Control		Experimental	
Omaha:	Adams	Omaha:	Jefferson
	Belle Ryan		
	Harrison		
	Mountain View		
Lincoln:	Calvert	Lincoln:	Meadow Lane
	Holmes		Prescott
	Huntington		

APPENDIX B

Writers in the Professional Sample

Baldwin, James

Barth, John

Bellow, Saul

Clark, Walter Van Tilburg

Ellison, Ralph

Farrell, James

Faulkner, William

Ferber, Edna

Heller, Joseph

Hemingway, Ernest

Horgan, Paul

Lee, Harper

Lewis, Sinclair

Michener, James

O'Hara, John

Porter, Katherine

Salinger, Jerome

Steinbeck, John

Thurber, James

Uris, Leon

Wharton, Edith

Welty, Eudora

Wescott, Glenway

Wolfe, Thomas

Wouk, Herman

APPENDIX C

Glossary of Syntactic Items

T-unit	Simple or complex sentence. Since the punctuation of children is sometimes erratic, each independent clause is treated as a separate sentence with dependent clauses attached to the most appropriate clause.
Sentence	Throughout this study, sentence is synonymous with T-unit.
Sentence type	One of the following varieties of sentences:
1 2	Subject - verb
1 2 4	Subject - verb - direct object
1 2 3 4	Subject - verb - indirect object - direct object
1 2 4 6	Subject - verb - direct object - object complement
1 2 4 6A	Subject - verb - direct object - object adjective
1 2B 5	Subject - linking verb - noun complement
1 2B 5A	Subject - linking verb - adjective complement
1 2P	Subject - passive verb
T1 2B 1	Expletive - verb - subject
W (Question)	Interrogative sentence
Inverted sentence (Inversion)	Sentence which has one or more major slots out of normal subject - verb - object/complement order
Compound Predicate	Sentence or T-unit which has more than one predicate with a single subject
Sentence pattern	Any one of the first nine sentence types listed above

Verbal phrase	A structure consisting of a verbal and its subject, object, complement, or modifier. The phrase functions as a unit filling some noun, adjective, or adverbial slot. When the verbal is part of a verb phrase it is not considered a verbal phrase. Likewise when the verbal fills a slot without subject, object, complement, or modifier, it is not considered a verbal phrase.
M	A movable adverbial slot, either a word, phrase or clause.
F	A fixed adverbial slot, either a word, phrase, or clause
M1, F1	An adverbial slot at the beginning of its clause, preceding the subject
M2, F2	An adverbial slot following the first major clause slot, usually coming between subject and verb
M3, F3	An adverbial slot between parts of a divided verb slot
M4, F4	An adverbial slot following the verb when clause slots appear, in regular order, or following the second major slot when there is an inversion
M5, F5	An adverbial slot following an object or complement, thus terminal
Slot	A grammatical segment functioning as a unit. The slot may be either a word, phrase, or clause. It is a single structure in constituent analysis at one level, but may be subdivided into its component parts at

	another level. Thus, subject, verbs, objects, subordinate clauses, and prepositional phrases are all slots.
Constituent analysis	A process of dividing and subdividing syntactic structures into simpler components. (See the examples below. See also R. Longacre, "String Constituent Analysis," Language XXXVI, 1960.)
Levels	The number of times a sentence can undergo successive constituent analysis, a process which subdivides slots into progressively smaller components. Each of the examples below has four levels.

(1)	I	think	it	is	the	very	best	time	of	the	year.
1st level	subj.	verb	object								
2nd level			subj.	linking verb	complement						
3rd level					determiner	adv.	adj.	head noun	prepositional phrase		
4th level									prep.	determiner	head noun

(1)	We	shot	at	the	planes	making	every	shot	count.
1st level	subj.	verb	prepositional phrase			participial phrase			
2nd level			prep.	determiner	head noun	participle	object		
3rd level							subject		infin.
4th level							adj.	head noun	

(3)	When	he	reached	the	edge	of	the	forest	he	was	scared.
1st level	movable adverbial clause								subj.	linking verb	pred. adj.
2nd level	subord. conj.	subj.	verb	object							
3rd level				determiner	head noun	prepositional phrase					
4th level						prep.	determiner	head noun			

APPENDIX D

Comparison of Slot Identification Instruments

Symbols Used to Identify Sentence-Level Syntactic Items in the Strickland, Loban, and Nebraska Syntax Studies

Description	Strickland	Loban	Nebraska
Question words	W	W	W
Interrogative subject	W	W	W1
Interrogative verb	W	W	W2
Interrogative indirect object	W	W	W3T
Interrogative direct object	W	W	W4
Interrogative predicate complement	W	W	W5
Subject	1	1	1
Understood subject			(1)
Verb	2	2	2
Auxiliary verb	(2)	2	2
Linking verb	2B	②	2B
Verb particle, movable			(2)
Verb particle, fixed			-2-
Passive verb	2B	2	2P
Passive linking verb	2B	2	2PB
Indirect object	3	3	3
to-prepositional phrase transform of indirect object	M5		3t
Direct object	4	4	4
Predicate nominative	5	5	5
Predicate adjective	5	5	5A

Description	Strickland	Loban	Nebraska
Objective complement	4	6	6
Objective adjective			6A

As noted elsewhere, in the Strickland study movables were classified according to semantic criteria; for example, there were movables of place, time, manner, cause, and condition. Whereas Loban makes no subclassification of movables, Hunt classifies them both by position and by meaning. In the present study adverbials are classified according to position in the clause and, unlike the other studies, a distinction is made between fixed and movable slots. For example, although previous studies would have classified "home" in the sentence "He went home" a movable, for most speakers of English this is a fixed slot. On the other hand, in the sentence "He went home in the morning," "in the morning" is easily movable to the beginning of the sentence. The reader should remember that the terms, "fixed" and "movable," are always relative. Thus, F indicates a slot which is relatively fixed for most speakers and M indicates a slot which is freely movable to other positions in the clause.

APPENDIX E

Examples of First-level Movables and Fixed Slots

Grade 2

Animals are coming $\underset{\text{F4}}{\underline{\text{out}}}$ and flowers are blooming $\underset{\text{F4}}{\underline{\text{too}}}$.

I like it $\underset{\text{M5}}{\underline{\text{because it is full of flowers}}}$.

Mrs. Thompson came $\underset{\text{F4}}{\underline{\text{to school}}}$, $\underset{\text{M5}}{\underline{\text{today}}}$.

Rabbits hop $\underset{\text{F4}}{\underline{\text{all around}}}$ $\underset{\text{M5}}{\underline{\text{in the cities and woods}}}$.

$\underset{\text{M1}}{\underline{\text{Once}}}$ there was a toy shop that was very little and had lots of toys to play with, and $\underset{\text{M1}}{\underline{\text{when people came to the toy shop}}}$ they played $\underset{\text{F4}}{\underline{\text{with the toys}}}$ $\underset{\text{M5}}{\underline{\text{some times}}}$.

$\underset{\text{M1}}{\underline{\text{One day}}}$ my family went $\underset{\text{F4}}{\underline{\text{to Texas}}}$.

We stayed $\underset{\text{F4}}{\underline{\text{at our friend's house}}}$ $\underset{\text{M5}}{\underline{\text{all the time}}}$.

$\underset{\text{M1}}{\underline{\text{Once upon a time}}}$ there was a doll.

I $\underset{\text{M2}}{\underline{\text{probably}}}$ will $\underset{\text{M3}}{\underline{\text{never}}}$ get done.

$\underset{\text{M1}}{\underline{\text{Mostly}}}$ we just call Kitty or Animal.

He was going $\underset{\text{F4}}{\underline{\text{on a journey}}}$, $\underset{\text{M5}}{\underline{\text{because his wife was sick}}}$.

His wife $\underset{\text{M2}}{\underline{\text{always}}}$ had wanted a baby horse.

So the old man went $\underset{\text{F4}}{\underline{\text{out}}}$ $\underset{\text{F4}}{\underline{\text{to find a horse}}}$.

Juliet liked to sit $\underset{\text{F4}}{\underline{\text{in her big, big chair}}}$ $\underset{\text{M5}}{\underline{\text{all day}}}$.

So her father and mother took her $\underset{\text{F5}}{\underline{\text{out into the forest}}}$.

Grade 3

After their rest the fawn tried getting up, but he quite couldn't make it.
M1 F4 M2

There was cnce a little leprechaun.
M4

He liked to play tricks on people.
F5

One day he walked through the forest.
M1 F4

A wizard appeared in a burst of smoke.
F4

Her mother died of a heart attack one week after Cindy was born.
F4 M5

She had never had a pet in her life!
M3 M5

One day the cat saw some mice in the house, down stairs.
M1 F5 M5

Every day Mr. Hind and Fido went out into the forest.
M1 F4

I'm going down to the sea, to see if I can kill that mean old Craig the Crab.
F4 M5

He was very brave until one day something happened.
M5

A big space ship came down from the sky.
F4

It was Halloween night so Debbie put on her witch costume.

Just then, one of the cowhands came in with a letter in his hand.
M1 F4 M5

Grade 4

In the year 15,000 I was strolling along the milkyway minding my own business
M1 F4 M5
when I bumped into a mad-house monster made by Edgar Hoosafat of course.
M5

As the tiger was walking under the brush a monkey jumped on his back.
M1 F4

I Bonnie Brown was born in Denver, Colorado, in St. Joseph's Hospital, October 16,
M4 M4 M4
1956.

"Oh I don't care," said Abe for he had been whipped very much.
F4

My big sister Jacque and brother Jim still give me a hard time because they had
M2
to eat split-pea soup on Thanksgiving Day while they were waiting for my mother
M5
and I to get home to have their Thanksgiving dinner.

He usually spent all day in the woods and all night sleeping except for when
M2 F5 F5 M5
he worked.

I probably get it from going camping.
M2 F5

Once upon a time, long ago there lived a squirrel named Boocall and a weasel
M1 M1
named Weasley and a boy named Alexander Pell.

One day three Siamese cats were rolling in the dirt by names of Josh, Caesar,
M1 F4
and Ed.

It is now 38 days after we blasted off.
M4 M5

We are about to blast off in the ship X-2-0.
F4

Once up in the heavens there was a lovely Goddess.
M1 M1

Grade 5

Then a man came to the door and asked him to come with him.
M1 F4

Then he found himself in a big room surrounded by people.
M1 F5

He like any other horse had a halter and his master was a nice man.
M2

He named the horse Snowball because he was so white like snow.
M5

My father was in the airforce, and as you would know we were always moving
F4 M1 M3

around.
F4

One hot summer day on a dock near San Francisco a bathyscope was being lowered
M1 M1

into the vast Pacific Ocean by a huge crane.
F4 F4

She quickly ran downstairs only to find that the time capsule wasn't there and
M2 F4 F4

neither was Dan.

It was the year 1999 when the world was in its future stages as the people called
F5

it.

There on the bed also sat a dog.
M2 M2

"Merlin, where are you," I called puzzled to a small furry cat no bigger than my
M4 F4

hand.

"Merlin," I stooped down to look under a bush and I came face to face with a
F4 F4

pudgy nose and two wide wondering eyes.
F4

Once there was a little Indian boy named Little Thunder.
M1

He was eleven now, and the next day he was to be twelve.
M5 M1

Grade 6

It was a bright Saturday morning in July, every one was up in the Johnson house,
F4 M5
that is all except one, Jimmy was still in bed.
M4 F4

And we would only go to school half a day.
M3 F4 F4

You would only have to go to school 7 months and get off 5 months for summer
M3 F4 F4 F4 F4 M5
vacation.

I am now in Paris where I stay in the Belmont Hotel.
M4 F4

Vic always did sleepwalk, but it didn't start worrying anyone until she started
M2 M5
taking things.

There was once a cowboy named Joe that didn't carry a gun.
M4

Now in those days that would get you into a lot of trouble, because there were
M1 M1 F5 M5
gunslingers.

One cool summer day, the strangest thing happened to me; I found a lion in my
M1 F4
backyard.
M5

If I were President all the school children would get out of school every other
M1 F4 M5
day.

APPENDIX F

Examples of Sentence Types

Pattern	Example
1 2	One spring morning some birds flew down to his hole. (Grade 2)
	Ducks like to swim in the water. (Grade 2)
	I was in the spaceship. (Grade 4)
	He went to the forest. (Grade 4)
	One day he was walking along a half torn-up road. (Grade 6)
	We are heading toward a faraway planet named planet Unknown. (Grade 6)
1 2 4	One day Harry saw a river. (Grade 2)
	A fox likes to eat many things. (Grade 2)
	He had a little brother named Si. (Grade 4)
	One night the keeper forgot to lock the monkey's cage. (Grade 4)
	They would get one hour for gym. (Grade 6)
	He and his friend Bud Scott have many scientific adventures together. (Grade 6)

Pattern	Example
1 2 3 4	"I will bring you back any thing you want." (Grade 2)
	The farmer told him to call the sheep. (Grade 2)
	She had promised me a dog. (Grade 4)
	Once my friend Jim asked me if I wanted to go swimming with him. (Grade 4)
	Billy told his father he was going home. (Grade 6)
1 2 4 6	Mostly we just call him Kitty or animal. (Grade 2)
	She named one Sam. (Grade 2)
	I'll name her Fifi. (Grade 4)
	We named him that because, he is white as snow, and likes to curl up like a snowball. (Grade 6)
1 2 4 6A	You might not think that so unusual. (Grade 4)
	Most boxers have their ears pointed up. (Grade 4)
	And we got ours free. (Grade 6)
1 2B 5	Sam was the fastest pony in the village. (Grade 2)
	I am a baby fox. (Grade 2)

Pattern	Example
1 2B 5	It was a sunny day when Babe was born. (Grade 4)
	His name was Bill. (Grade 4)
	The gunslinger was a tough man. (Grade 6)
	He is the bad boy of the class. (Grade 6)
1 2B 5A	My cat is big and black. (Grade 2)
	Soon the baby birds will be able to fly. (Grade 2)
	He was very rich. (Grade 4)
	He was very unhappy being separated from his mother. (Grade 4)
	The ocean was rough. (Grade 6)
	The story I have to tell is true. (Grade 6)
1 2P	One day a new store was opened. (Grade 2)
	I got splashed a little bit. (Grade 2)
	He was going to be whipped!!! (Grade 4)
	He was caught by the zoo. (Grade 4)
	The horses were used for plowing, and for the children to ride. (Grade 6)

Pattern	Example
T1	Once upon a time there was one little girl. (Grade 2)
	There is a duck in the story. (Grade 2)
	Once up in the heavens there was a lovely Goddess. (Grade 4)
	Once upon a time there was a king who wanted to fly. (Grade 4)
	After he was out there for a few peaceful days there was trouble. (Grade 6)
	Once there was a fish who was bigger and more lively than the rest. (Grade 6)
W (Question)	What are you going to do on your birthday? (Grade 2)
	Her mother said, "Do you want a pet?" (Grade 2)
	The monkey said, "What did you do that for?" (Grade 4)
	How would you like to go? (Grade 4)
	"Oh do I have to?" (Grade 6)
	"When do we leave?" said Mark.
Inversion	Once lived a boy who always wanted a dog. (Grade 2)
	One she named Tam. (Grade 2)
	In the sand hills of Nebraska, which incidentally are good mostly for beef cattle, lived a very unusual cow. (Grade 4)

Pattern	Example
Inversion	Once upon a time lived a beautiful princess. (Grade 4)
	Underneath the roots of a giant tree sleeps White Ligntning. (Grade 6)
Compound Predicate	Every Saturday she would go to market and buy things. (Grade 2)
	He came out of his spaceship and saw the monsters. (Grade 2)
	One day Josh gathered up two other cats and held a meeting. (Grade 4)
	Then they found an old woman and brought her to the king. (Grade 4)
	I bought a box of shells and went to the farm that next day, to go hunting. (Grade 6)
	Joe had much experience and could lay the cable faster than anyone else in the telephone company. (Grade 6)